

**Considering Total Quality Management in Ministry of Health  
Hospitals in Jeddah City in Saudi Arabia**

**Volume [I]**

**by Amal Mohammed Sheikh Damanhour**

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## **DECLARATION**

This work has not previously been accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.

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Other sources are acknowledged by footnotes giving explicit references. A bibliography is appended.

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## **LIST of ABBREVIATIONS**

<b>AAAHHC</b>	the Accreditation Association for Ambulatory Health Care
<b>AHA</b>	American Hospital Association
<b>AOA</b>	American Osteopathic Association
<b>BSI</b>	British Standards Institution
<b>Chi square</b>	$\chi^2$
<b>CIP</b>	Continuous Improvement Process
<b>CQI</b>	Continuous Quality Improvement
<b>DV</b>	Dependent variable
<b>FA</b>	Factor Analysis
<b>FADE</b>	Focus, Analyse, Develop and Execute
<b>FHSA</b>	Family Health Services Authorities
<b>FOCUS</b>	Find, Organise, Clarify, Understand and Select
<b>GDP</b>	Gross Domestic Product
<b>GP</b>	General Physician
<b>Hospital (1)</b>	King Fahd Hospital
<b>Hospital (2)</b>	King Abdulaziz & Oncology Centre Hospital
<b>Hospital (3)</b>	Al Thaker Hospital
<b>Hospital (4)</b>	Childbirth & Children Hospital
<b>Hospital (5)</b>	Al Azizya Childbirth & Children Hospital
<b>Hospital (6)</b>	Eye Hospital
<b>Hospital (7)</b>	Mental Health Hospital
<b>Hospital (8)</b>	Al Amal Hospital
<b>Hospital (9)</b>	King Saud Hospital
<b>HRM</b>	Human Resources Management
<b>IOM</b>	Institute of Medicine
<b>ISO</b>	International Standards Organisation
<b>IV</b>	Independent variables
<b>JCAHO</b>	Joint Commission on Accreditation on Health Care Organisations
<b>KFAFH</b>	King Fahd Armed Forces Hospital
<b>KMO</b>	The Kaiser Meyer Olkin Test
<b>KSA</b>	The Kingdom of Saudi Arabia
<b>LSD</b>	Least Squared Distance
<b>MLR</b>	Multiple Linear Regression
<b>MOH</b>	Ministry of Health
<b>MOP</b>	Ministry of Planning
<b>NA</b>	Not available
<b>NCQA</b>	National Committee for Quality Assurance
<b>NHS</b>	National Health Service
<b>NWAFH</b>	North West Armed Forces Hospital
<b>OGS</b>	Other Government Sector
<b>PDCA</b>	Plan, Do, Check, and Act
<b>PR</b>	Patients' Requirements
<b>PS</b>	Private Sector



<b>PSRO</b>	Professional Standards Review Organisation
<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control
<b>QI</b>	Quality Improvement
<b>QIT</b>	Quality Improvement Teams
<b>QM</b>	Quality Management
<b>QMS</b>	Quality Management System
<b>RQMP</b>	Regional Quality Management Programme
<b>SPSS</b>	Statistical Package for Social Science
<b>SR</b>	Saudi Riyal
<b>TQ</b>	Traditional Quality
<b>TQM</b>	Total Quality Management
<b>TQMD</b>	Total Quality Management Department
<b>UK</b>	United Kingdom
<b>URAC</b>	Utilisation Review Accreditation Committee
<b>US\$</b>	United State Dollar
<b>USA</b>	United State of America
<b>USAID</b>	United State Agency for International Development
<b>VIF</b>	Variance Inflation Factor
<b>WHO</b>	World Health Organisation



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## **SUMMARY**

This study investigates Total Quality Management in the Ministry of Health hospitals in Jeddah in Saudi Arabia as a method of continuous improvement in health services.

The objective of the study is to determine the concept of quality, the characteristics of a quality system and the definition and importance of Total Quality Management. The hypotheses are based on the assumption that there are standards and indicators for quality in health services; that current quality plans lead to improving quality and the hospitals are applying Total Quality Management factors. These include commitment of top management to Total Quality Management, customer satisfaction, improvements in the process, changes in the culture, human resources management, containing the costs of quality and the use Total Quality Management tools.

The theoretical chapters include the outline of the study, the health services in KSA; quality in health services; Total Quality Management and its factors in health services; how it could be applied in hospitals especially in the public hospitals; the critiques of Total Quality Management regarding theory and practice, in the public and private sectors and the problems that may be found in its application. The study was based on two questionnaire surveys dealing with patients and employees in the hospitals and the interviews with the managers of Total Quality Management departments.

The results concluded that there are many factors that determine the concept of quality, and the definition of Total Quality Management. The characteristics of a traditional quality management system are still used and there is a need to implement a more comprehensive quality system such as Total Quality Management in hospitals in Jeddah. Also, the study concluded that most hospitals have not quality standards and indicators, just two plans have an effect on improving quality (plans relating to human resources management and culture environment) and there was a weakness in the application of the elements of Total Quality Management in hospitals. The elements relating to the top management are lower than expected, such as mission, vision, values and objectives of Total Quality Management. The level of health services quality does not meet the patients' requirements and achieve employees' satisfaction. The elements relating to the process of health services are lower than expected, such as systems and explicit work methods. The cultural environment in hospitals does not contribute to the achievement of the provision of a proper work environment for the programmes of Total Quality Management such as factors related to organizational environment, decision-making, prevention and information. There was a lack of human resources management in the implementation of Total Quality Management programmes in the variables related to the employees' competence, involvement, teamwork, communication and system. Finally, Total Quality Management tools do not contribute to improving the quality of health services. There is a need for further study relating to quality costs. Also studies will need to carry out research of other dependent variables that are not included in the model suggested in the study related to the top management commitment, cultural environment and human resources management.



# **CHAPTER 1**

## **INTRODUCTION**

### **1.0 Introduction**

Quality of care in the health sector has emerged in the past few decades as a well-structured and specialised field in developed countries. Although the medical profession, particularly physicians, have been aware of the importance of quality in health for centuries, the approaches towards improving quality of care were not structured. Doctors have always played a dominant role in the field of medicine by virtue of their medical knowledge and qualifications. Although the medical profession has always been regarded as a branch of 'science', however, even up to the beginning of this century, whenever there was the question of quality in healthcare, the doctors always said that they were the only ones who could manage health care services because, according to them, the delivery of quality care is an 'art' which is best known by doctors. These concepts have changed over the past few decades. Probably the biggest change has been the defining of the roles of doctors, nurses and other healthcare and support services professionals in the field of medicine. This has become possible partly as a result of the increasing role of professional managers in healthcare. Consequently, the quality of care has much wider implications in terms of definition and concepts especially in developed countries. There are more healthcare organisations in the field of healthcare quality and there are more healthcare quality journals than ever before, signifying the increasing role and importance attached to quality improvement.

However this is not the case in developing countries. The world is clearly demarcated into two different spheres, when comparing the level of healthcare in the developed and developing countries. The study of common health indicators highlights this difference. The general picture of people's health in some developing countries is worse than the situation in developed countries one hundred years ago (Al Harithi, Al Innad, Bait-Al Mal, and Al Kharashi, 1999, p.25). The same applies to the concept of quality in healthcare. Under the existing scenario of healthcare systems in the developing countries the one fundamental question arises, 'Is there a need to address the issue of quality of

healthcare in developing countries?' Probably the only rational answer is, 'yes'. The next crucially important question is how the quality of health services and the delivery of care can be improved in developing countries? Approaches, methods and detailed procedures towards improving the quality of care in developed countries may not be applicable to the developing countries, because of differences in healthcare systems and several other factors. But the principles developed by the developed countries can be studied, analysed and understood in order to adopt them according to local circumstances. This may help in raising the quality of care in a shorter time period than that taken by the developed countries.

This chapter includes the research plan including: the Kingdom of Saudi Arabia, the nature of the problem, the research problem, the importance of the research, the questions asked, the objectives and the hypotheses.

### **1.1 The Kingdom of Saudi Arabia**

The Kingdom of Saudi Arabia (KSA) lies in South-western Asia, occupying 80% of the Arabian Peninsula, with a total area of over 2,250,000 Square Kilometres (Ministry of Planning (MOP), 1995 a, p.15). Islam is the only legal and officially recognised religion, and the constitution is governed according to Shari'a (Islamic law). The head of the government is the Monarch. Despite its strong economic structure, Saudi Arabia is considered to be one of the developing countries (MOP, 1985, p.x). The government is focusing on comprehensive development in all economic and social sectors (MOP, 1995 b, p.x). This is achieved through the five-year development plans that began in 1970. Over the past thirty years, the development plans have focused on the establishment of a solid infrastructural base, the development of human resources, the diversification of the economic framework and raising the standards of living by improving the quality of life and on expanding the role of the private sector. The Seventh Development Plan (2000-2004) is simultaneous with the beginning of the third millennium, which is expected to include many domestic and international challenges. These challenges include rapid scientific and technological advances, the trend of privatisation, globalisation, a steady increase in the Saudi population and the trend of Saudization. The plan focuses on



adopting an integrated set of appropriate long term economic policies to develop human resources and to upgrade their competence and to increase their employment. The plan also focuses on increasing the productivity and improving the quality of the services provided directly by the government to the employees and to extend the provision of water, electricity, transportation and communications (MOP, 2000 a, p.xiii). Saudization can be defined as “qualifying the individual citizen to undertake the duties of certain jobs which are undertaken now by competent non-Saudi employees, and to provide the Saudi individuals with all required elements available to the expatriates - trends, skills, knowledge and efforts-”(Farahat, 1993, p.5).

Health services are provided in the Kingdom via three parties, namely: the Ministry of Health (MOH), government sectors and the private sector. These Health services are provided at three levels. The first level is the primary health care, the second level comprises the general hospitals and the third level consists of the specialist hospitals (MOP, 1985, p.343). More details are provided in chapter two.

In Saudi Arabia there has been interest in improving the quality of health care since the early seventies. This was reflected in an increase in expenditure on health care and an increase in the numbers of hospitals and employees in both the private and the public sectors. This development had been accompanied by the expansion of the range of health services from treatment services to preventive services. Since the early nineties, the development plans have concentrated on improving the quality of health services, improving the effectiveness of health care institutions, as well as continuing their quantitative growth (Al Walifi, 1991, p.17).

The KSA is considered one of the first Arab countries to have implemented, or planned the implementation of, Quality Assurance (QA) programmes in the health services (Bin Saeed, 1995, p.49). The QA programme in the MOH had been instigated with the formation of the Central Committee for QA in 1987, with the objective of developing and following up the QA programmes in the Ministry's hospitals. In 1989, a QA committee was formed in each of the 14 hospitals, which were selected to represent

the various regions of the Kingdom. The objective of each committee was to improve the quality of services provided to the patients, to ensure the optimal utilisation of available resources and to reduce costs (Bin Saeed, 1994, pp.7,8).

According to a report of the World Health Organisation (WHO) (1996, pp.62, 63) the Kingdom has QA programmes in all the primary health care centres and some selected hospitals are making genuine efforts to upgrade the level of the services provided therein. The objectives of the quality assurance programmes are to set a standard criteria for health services in the primary health care centres, to determine indicators for continuous evaluation, to integrate these criteria and indicators in the planning, follow up and evaluation processes in these centres (Scientific Committee of Quality Assurance of Primary Health Care in Kingdom of Saudi Arabia, Supervision, 1993, p.11).

The implementation of the Kingdom's quality assurance programmes has been justified for several reasons, including the need to set standards and criteria for the various health activities and the need to prepare and develop top managers to understand the programmes for Quality Management (QM) in the health sector. Also to ensure the protection of the consumer, the desire of the employees of the health sector to participate in and be committed to the QA programmes (Scientific Committee of Quality Assurance of Primary Health Care in Kingdom of Saudi Arabia, Supervision, 1993, pp.12, 13).

In 1993, the MOH (1993, p.1) prepared a comprehensive plan for quality management in the Kingdom. In this plan, the Ministry of health explained the philosophy of quality management.

Philosophy: The MOH, through its central, regional and individual hospital facilities believes in the importance of a systematic QM in providing healthcare services. Such an approach helps ensure QM activities are being performed at all levels within the ministry and assessments, regarding the review and improvement of both clinical and administrative processes, are being performed. The ultimate outcome is to improve healthcare services to the population that the Ministry serves (MOH, 1993, p.4).



The QM plan focuses on many points, including continuity and systematically looks for ways to improve the efficiency of the service being delivered, taking into account the distinct culture of the Saudi people, when applying QM techniques to services rendered to Saudi patients (MOH, 1993, p.3). It always strives to improve communication, accuracy of information, efficiency, empowerment of the employees in QM, satisfying the customer, identifying a few key indicators per hospital department, developing a framework for standards overall and specific indicator development and implementation, developing and implementing a formal QM education and training programme for Saudi nationals and identifying Saudi nationals who have an interest in the QM programme, obtaining the necessary commitment from the pilot regions and selected hospitals to provide necessary QM resources and upgrade medical records (MOH, 1993, pp.4-5).

In 1994, a joint Saudi committee was formed out of the American Saudi Co-operation Committee. The objective of this committee was to improve the quality of services provided by the Ministry of Health. The committee selected four hospitals from the various regions of the Kingdom, and then later on expanded its activities to cover four hospitals within each region. Its activities included organising workshops for training the employees of the quality management departments in each of these hospitals and forming a technical committee to set standard criteria for the health services in the hospitals. This latter committee started by designing ten standards and criteria that covered some of the services provided by the hospitals, such as pharmacy, infection control, radiology, laboratory, blood bank, medical education, optimal utilisation of resources and evaluation of the physicians' performance (Al Ghamdi, 1998, p.1).

Total quality management (TQM) is applied in some of the hospitals in the Kingdom. These include the Third Level hospitals for medical care in the Kingdom, such as the specialist hospital, King Khalid hospital and some of the military hospitals. Some of these hospitals are managed by specialised foreign companies, such as the North West Armed Forces Hospital (NWAFFH) and King Fahd Armed Forces Hospital (KFAH) (Hoskins, Noor and Ghasib, 1994, p.155). NWAFFH in Tabuk became one of the first hospitals in the Kingdom to implement Total Quality Management (TQM). This was evolved from a well-co-ordinated transition from Quality Assurance (QA) to TQM. This hospital used

the eight-steps model for implementing TQM, adapted from the Joint Commission standards and the health care managers' guide. The eight-steps are clarified in Table 1.1.

Table 1.1

**Model for implementing TQM in NWAFFH**

1- Identify the customers of the QA department
2- Identify their needs and professional requirements
3- Implement operational requirements to meet their needs
4- Identify internal monitors to evaluate the effectiveness of the implementation of the operational requirements
5- Monitor performance
6- Report
7- Identify improvement opportunities
8- Problem solving using FOCUS-PDCA (Find, Organise, Clarify, Understand and Select- Plan, DO, Check, and Act)

Sores: Hoskins *et al*, 1994, "Implementing TQM in a Military Hospital in Saudi Arabia," *Journal on Quality Improvement*, p.156.

**1.2 Nature of the Problem**

The issue of the quality of goods and services has been given considerable importance in the 1980's and 1990's and has become the challenge that will confront nations in the twenty-first century (Harb, 1997, p.10). Quality in health care has been identified as "performance, according to standards, of interventions that are known to be safe, that are affordable to the society in question, and have the ability to produce an impact on mortality, disability and malnutrition" (MOH in Jordan, in co-operation with the United States Agency for International Development (USAID), 1994, p.16). The dimensions of quality in health care are technical competence, accessibility, effectiveness, good relations, efficiency, continuity, safety and amenities, realisation and development from a focus on Inspection to Quality Control, then to Quality Assurance, finally to Total Quality Management (Zain-Al Deen, 1996, p.12).

TQM is a managerial philosophy and a key management issue because it is essential for efficiency and competitiveness (Farahat, 1996, p.74). For the purpose of the dissertation, the term TQM will be used as 'a comprehensive and integral managerial system that is committed to generating a working environment in hospitals, which achieves continuous improvement for the abilities and the skills of all employees and



working systems. This improvement aims to be a continuous improvement in all activities that lead to improved health services through the application all elements of TQM that are appropriate to the hospital'(see chapter 4).

Patient satisfaction, rationalisation of expenditure and contribution to solving problems provide the main impetus for improving quality in the Saudi Arabian health service:

- Patient satisfaction: in order to keep pace with the current best practice technique in health services. This concept starts and ends with the patients, aiming to achieve and provide the best possible quality health care, to satisfy their needs and expectations (Hassan, 1993, p.71). TQM is always based on satisfying the present, and anticipating the future needs of the customer; including the development of the performance of the individuals, ensuring that the duties of the employees have been designed to fit with the patient expectations and improving work methods in general (MOH, 1994, pp.1-5).
- Rationalisation of expenditure: in the government and private sectors through upgrading administrative efficiency and productivity in hospitals by improving the quantity and quality of health services provided (MOP, 1995 b, pp. 93, 350).
- Contribution to solving the problems: in government hospitals relating to human resources, structures, equipment, medical provisioning, operation systems, patients, referral and nutrition (MOH, 1990, pp.343, 374).

### **1.3 The Research Problem**

The provision of medical services at the Saudi hospitals is considered a fundamental human right for all citizens and expatriates. The government confirms the need to improve health services. The government hospitals, however, are facing the problem of reduced budgets. The budget for the MOH was reduced from 10742.9 in 1984 to 7364.8 millions of Saudi Riyal (SR) in 1996 (Al Harithi, *et al*, 1999, p.68). At the same time, the demand for health services is ever increasing due to the increase in population and growing life expectancy, pollution and traffic accidents. In addition, developments in medical technology and the methods of diagnosis (Hassan, 1993, pp.60-65), and the emergence of new diseases, have led to increased costs. The number of people using the

health sector facilities has increased from 88776849 in 1993 to 94254139 in 1997. In addition, the number of inpatients in hospitals increased from 1826971 in 1993 to 1999426 in 1997 (MOH, 1997, pp. 230, 236).

In recent years, private hospitals have endeavored to provide a high level of quality in their services, as some companies and establishments demand high quality medical care for their employees. The government also ratified the co-operative health insurance system for non-Saudi employees and their families in all companies and establishments regardless of the number of employees (MOH, 2000 a, p.5).

Therefore, people are looking to TQM to contribute to the continuous improvement of health services and to reducing costs, through upgrading administrative efficiency and productivity in hospitals.

According to a library survey of research relevant to applying TQM in the Kingdom's health sector, very little research has been conducted. Related research is as follows:

①

### **1.3.1 Studies Relating to QA.**

1.3.1.1 Bin Saeed (1994, pp.30, 33), carried out a study to determine the attitudes of nurses towards the effectiveness of QA programmes in the MOH hospitals and the factors that affect the effectiveness of these programmes. The field study was conducted in six out of fourteen hospitals that apply such programmes. The researcher used a questionnaire that had been distributed to 646 people. The researcher tested a number of hypotheses using the Chi square ( $\chi^2$ ) test statistics. The conclusions of the study were as follows: Two thirds of the sample were of the opinion that the programmes were effective and one third was of the opinion that the programmes were ineffective. The reasons that negatively affect the effectiveness of the quality programmes in the hospitals include: the different nationalities of the hospital employees, the non-availability of quality specialists, high turnover of employment among the nurses, ignorance of the concept of QA by the top management and a lack of encouragement of the implementation of QA programmes, lack of employee awareness towards the importance of applying QA



programmes, their effectiveness and the non-availability of standards and criteria for evaluation.

1.3.1.2 Al Touri (1998, pp. 280, 281) presented a study about the Evaluation of Quality Programmes in Saudi Arabian Hospitals. He investigated the quality activities of 27 hospitals, including the Military, MOH, private and University hospitals. In addition, a case study was applied to Armed Forces Hospitals in the Southern Region. The researcher used personal interviews and questionnaires, which were distributed to the employees in hospitals. The most important findings were as follows: Quality programmes are in place in the KSA, but at a low level and very ineffective. The Military hospitals provide the best examples, followed by MOH hospitals. Quality training is weak across the board and ISO 9001 has not gained popularity across the Kingdom. For the most part, QA remains the predominant approach and great improvements can be achieved in terms of quality activities in most Saudi hospitals, if they have the right quality programmes in place. The case study, which studied a QA programme, suggested using the TQM approach as it could improve the quality in this hospital. It also showed that quality improvements could be planned and developed for hospitals within the KSA.

### **1.3.2 Studies Relating to Patient Satisfaction regarding Provision of Health Services.**

Studies are very limited in number and offer patient opinion on some aspects of a few health services. Some important studies are as follows:

1.3.2.1 Al Berte's (1987, p.128) study identified demographic factors that make patients select government or private hospitals for treatment. The study was applied in two government hospitals and two private hospitals in the city of Riyadh. The researcher used a questionnaire. The researcher concluded that most of the citizens who use the government hospitals are of old age, low educational level (a maximum of secondary educational level) and low income. On the other hand, those who use the private hospitals are younger and of higher educational levels and income.



1.3.2.2 Al Jowair 's study (1988, p. 120) included the effect of some the demographic factors on the level of patient satisfaction with health care in hospitals, such as sex, age, education and income level. He applied his study in the Armed Forces Hospital in Riyadh, using a questionnaire that had been distributed to the patients. He concluded that age is the main deciding factor. The older patients were more satisfied than the younger patients.

1.3.2.3 With regards to the study of Hurstani and Al Turki (1984, p.45), these two researchers concluded that the average patient waiting time in outpatient clinics for previously set appointments in two Riyadh government hospitals were higher than the average known waiting time in similar cases in some developed countries. It was found that 8.83% of patients waited less than 15 minutes, 25.26% of patients waited between 15 to 30 minutes, 20.53% waited between 30 to 45 minutes and 45.38% waited for 45 minutes or more. The research selected the waiting-rate that is allowed in most British hospital outpatient clinics as one of the rates in most of the developed countries. This rate is represented in that 75% of the outpatients who frequent outpatient clinics on previously set appointments shall not wait more than 30 minutes. The researchers used a questionnaire for the analysis of the research.

1.3.2.4 The study of Al Hamad, and Al Shouaib (1991, pp.7-36) is considered more comprehensive than the two mentioned above. It aimed to survey the opinions of patients regarding health services in public and private hospitals all over the Kingdom. The study focused on three types of services namely: outpatient clinic, inpatient and emergency services. The researchers used questionnaires and personal contacts in the hospitals. The number of questionnaires distributed was 1275 to outpatient clinic services, 557 to inpatient services and 1408 to emergency services. The researchers used the Kruskal-Wallis and Barlett tests and 5% was taken as the critical significance level of test statistics to accept or reject the hypotheses. The conclusions of the study were as follows:

- Conclusions relating to Outpatient Services: These included the non-satisfaction of both public and private hospital patients concerning some services such as the hospital location, the internal organisation of the services' sites, car parks, the level of cleanliness

in the waiting areas and the toilets, the attitude of the receptionists, obtaining medical files and waiting time. Patients also mentioned the lack of understanding of medical terms, the limited number of interpreters for physicians who did not speak Arabic, the shortage of time allocated to each patient, failure to show full attention to the patient and explaining his case clearly, not explaining the procedures to be followed such as, making examinations or getting radiological image, shortage of medicines and prescription of non-available medicines. Positive results included: ease of access to the various clinics, physicians' respect for the privacy and feelings of their patients, direct and appropriate questions asked by physicians and patients provided with full information particularly in cases of surgical operations.

- Conclusions relating to Inpatient Services: These included the satisfaction of most patients about procedures that preceded the surgical operations, the outcomes of these surgical operations, the attitude of nursing staff, understanding the language of the physicians and the availability of interpreters, the physicians' attentiveness to their patients and explaining their daily progress to them, rooms and toilets. The study also concluded that patients were not satisfied with their meals.
- Conclusions relating to Emergency Services: On arrival at the hospital emergency section patients complained about the extended procedures of reception registry, obtaining the emergency service, a shortage in facilities, low level of attention to the patients and the services provided to them and late arrival of the ambulance.
- Other conclusions included that social status and favouritism had played a big role in facilitating the procedures and getting better services for some patients at the expense of others (Al Hamad, and Al Shouaib , 1991, pp. 289-292).

1.3.2.5 Al Khatteeb (1987 a, pp.20, 23; 1987 b, pp.31, 36) prepared a study of the evaluation of health services in the health sector. The study was applied in Jeddah's private and government hospitals. The researcher used a questionnaire that had been distributed to the 377 patients. In addition, the interview method was used on some employees in a few hospitals. The researcher used some statistical analysis tools, such as ( $\chi^2$ ), correlation coefficient, multivariate regression analysis, and variation tests. The results showed that patient satisfaction regarding health care is influenced by the extent of



physician attention, the quickness of nurse response to patient complaints, cleanliness, quiet and the equipment in the patient's room. Provision of these services was better in the private hospitals than in the public ones. The study also concluded that there was some deficiency in the procedures of registration of first time patients, the attitude of the receptionists, communication between patients and with their physician. Moreover, patients believed that medical treatment in the private hospitals was very costly.

### **1.3.3- Studies Related to the Costs of Health Services:**

1.3.3.1 Mattar (1992, p.85) carried out a theoretical study, which aimed to set out a model for containing the costs of providing health services without reducing their quality. The model included an analysis of the internal and the external environment of the hospital, setting long-term objectives, the strengths and weakness of the hospital. The study concentrated on the importance of having an integrated information system. In addition, the study suggested the classification of the items and elements of costs in accordance with the objective to contain costs and facilitate the setting of criteria and measurements of outcomes.

1.3.3.2 In a later study, Mattar (1997, pp.205- 240) presented a field study with the objective of determining whether financial resources were being used efficiently in the health sector in the Kingdom of Saudi Arabia. It focused on the opinion of physicians about the inappropriate admission of inpatients and immoderation in requesting unjustified health services. The study was applied in 61% of the total number of private and government hospitals in Riyadh. The researcher used a questionnaire that was distributed to a sample of physicians. The number of the sample was 240, representing 12% of the total number of physicians. The researcher used Chi square ( $\chi^2$ ), one- way ANOVA and Kruskal-Wallis tests. Amongst the most important conclusions of the study was that there were unnecessary inpatient admissions and unjustified requests for other health services but with some variation according to the hospital management style. The study revealed factors that led to unnecessary admission of inpatients. These included the desire to increase the rates of utilisation of the hospital beds, the absence of a good inpatient policy, trying to satisfy the patients and an abundance of beds and facilities. The



factors that were behind the unnecessary extended stay of the inpatients in hospital were defined as satisfying the desire of the patient to stay in hospital for a longer time, early transfer to inpatient and later discharge of the inpatient due to routine procedures. The study also defined the factors behind unjustified medical procedures such as the physician's desire to ensure the accuracy of the diagnosis, to protect themselves against accountability for professional negligence, to satisfy the patient and to the variance and loss in the results of previous analysis and procedures. Finally the study also found inefficiencies in systems of medical records for patients.

All these studies have been undertaken recently indicating that the interest in quality and related matters in the Kingdom is also recent. However, such studies are very few and most of these have been carried out in Riyadh. Most of the previous studies were carried out in public and private hospitals and used a comprehensive approach of scientific research based on theoretical and field researches. Moreover, most of these studies were undertaken by scholars from universities, and covered the implementation of quality.

For the purpose of this project, the researcher applied the same scientific research approach to Jeddah, utilising the methods of statistical analysis used in previous researches. The researcher used well-established techniques for data collection; including questionnaires, interviews and personal contacts. The researcher focused the study on TQM.

Some previous studies included:

- Studies relating to QA: The first one (Bin Saeed, 1994) was undertaken in MOH hospitals and concentrated on the opinions of one category of hospital staff, namely nurses. The results would have been more valid if it had covered employees in other fields within the hospitals. The second one (Al Touri, 1998) was of a wider scope. It looked at a varied sample of Saudi hospitals and concentrated on the opinions of a sample of hospital staff covering all levels especially the administrative staff, but it did not include patients. However, in this study the

researcher will investigate the opinions of a sample of all MOH hospital employees and patients.

- Studies concerned with patient satisfaction have concentrated on one factor of TQM, namely patient needs. The other factors of TQM had been ignored. Hence this study will consider these factors. Moreover, these studies dealt with some of the factors affecting the satisfaction and opinions of the patients in the health services provided in the hospitals. However, this research will try to identify the opinions of patients about all the services relating to the factors of TQM, focusing on inpatients only.
- Studies concerned with costs focused on only one factor of TQM. In addition to that they considered only one factor of cost that pertains to unjustified inpatient stay and only from the point of view of doctors. However, the researcher will try to solicit the opinions of all the employees about quality costs in hospitals.

Hence, it is evident that this study will be one of the first studies in the KSA aiming to apply all of the elements of TQM in the hospitals.

#### **1.4 The Importance of the Research**

This research is important for the following reasons:

- The importance of the health sector in the KSA, as health is a basic requirement of all citizens and expatriates in the country. The state's policy is to provide integrated health services and continuous improvement in these services.
- The importance of assuring the satisfaction of those who benefit from the health service, and of the employees in Saudi hospitals due to the increasing levels of consciousness of the citizens and their expectations for an adequate level of quality. Moreover, employees are asking for more advanced scientific and managerial services. This increases the significance of TQM as a method to improve quality in health services and to safeguard the rights of both patient and employee.
- The importance of reducing costs in Saudi hospitals, which is increasing the significance of total quality management and encouraging managers to apply it. As a new method of management it can assist the Saudi hospitals in reducing their



costs (in terms of investment and operation) to enable them to face the increasing pressure on their budgets and to utilise resources efficiently. According to Shihatta ( 1995 a, p.92) the cost of establishing a hospital bed was over two million SR and the annual cost of operating one bed reached more than half a million SR. Investment costs of government hospitals reached SR68. 326 billion, while the annual cost for operating these hospitals reach 17.082 billion.

- The importance of keeping pace with rapid scientific progress and development in both medical and managerial areas in order to continuously improve quality in health services.
- There is a shortage of scientific studies and research on the subject of TQM in the health services in the Arabic region in general, and in Saudi Arabia in particular. This has contributed to encouraging the researcher to present a scientific, practicable and special study in this field. The applied study of this research that includes the hypotheses and the objectives of the research are considered as one of the first academic studies on quality management in Saudi hospitals, and therefore the results and recommendations will contribute to the improvement of the quality management of the health services.

### **1.5 What this Thesis is about:**

This study will address the following research questions in Jeddah city MOH hospitals:

- What are the concepts of quality in health services?
- What are the standards and indicators of quality in health?
- What are the characteristics of systems of quality in health services?
- What is the relationship between the plans of quality management and the aim of improving the quality of health services?
- What are the definitions of TQM in health services?
- What are the reasons that motivate MOH hospitals to adopt the elements of TQM?
- What are the elements of TQM applied in health services?



This study investigated public hospitals in Jeddah city. The private sector was not included because there were many difficulties in distributing the questionnaires in this sector (see details in methodology chapter)

## **1.6 Objectives of the Research:**

The study aims to:

- Clarify the concepts of quality from the patients' and employees' perspective in Jeddah MOH hospitals.
- Define the characteristics of the existing system of quality in MOH hospitals in Jeddah
- Clarify the definitions of TQM in health services in Jeddah MOH hospitals from the employees' perspective.
- Clarify the importance of applying the elements of TQM in MOH hospitals in Jeddah.

## **1.7 Hypotheses of the Research**

The research focuses on testing the following hypotheses:

- The Jeddah MOH hospitals have standards and indicators of quality in health services.
- The plans of quality management lead to improving the quality of health services in hospitals.
- Top management is committed to the implementation of TQM programmes.
- Customers are satisfied with the current quality of health care.
- Hospitals focus on the quality process of health services.
- The cultural environment in the hospital is conducive to the implementation of TQM.
- There is sufficient human resource management to implement a TQM programme.
- Hospitals do not suffer from the high quality costs of health services.
- Hospitals make sufficient use of TQM tools.

## **1.8 Conclusion**

In MOH hospitals, the quality assurance programme began in 1987 and improvement of the quality began in 1993. In this chapter the researcher looked at the concept and principles of TQM for improving the quality of health services in MOH hospitals, how it can contribute to patient satisfaction, rationalisation of expenditure and contribution to solving problems in hospitals. There was very little research in TQM in healthcare in the KSA, which include studies relating to QA, patient satisfaction and to costs of health services. The importance of the research includes the importance of the health sector, customer satisfaction, reducing costs, keeping pace with scientific developments in medical and management areas and a shortage of studies in TQM. The main questions of the study include three points: quality, the quality system and finally TQM as the main subject of the research. The objectives of the research include the clarification and determination of quality concepts, the characteristics of existing systems of quality, the definitions of TQM and the importance of applying TQM. The hypotheses of the research focuses on testing the standards and indicators of quality, to see if the plans of TQM lead to improving quality and the elements of TQM such as top management, customer satisfaction, the process, cultural environment, human resource management costs and tools of TQM.

## **CHAPTER 2**

### **HEALTH SERVICES IN THE KINGDOM OF SAUDI ARABIA**

#### **2.0 Introduction**

Health services in developing countries, including the Kingdom of Saudi Arabia, are considered essential to fight the combination of poverty, illiteracy and diseases that endanger most of these countries (WHO, 1981, p.15). Health services in the Kingdom are considered part of the comprehensive social and economical development plan (WHO, 1988, p.15). This chapter covers details relating to the health sector in the KSA, such as the health care system, the development of the health strategy, the current health situation, the external environment that affects the health sector and the hospitals in the KSA.

#### **2.1 Health Care System:**

The organisation of the health services in the Kingdom started in 1925, when the Public Health Department was established (Al Zarkali, 1970, p.402). In 1951, the Ministry of Health was established to undertake the health and preventive health tasks and responsibilities and to continue the development of health systems and facilities in order to attain an improved level of health care (Al Harithi *et al*, 1999, p.61). The health strategy is based on providing the best possible government funded free health services and to encourage the private sector to invest in these services (MOH, 1980, p.3). Since the early 1980's, the Kingdom has begun to reorganise the health system through establishing more primary health care centres (WHO, 1988, p.155), with the objective of providing health care for everybody and to relieve the pressure on the hospitals.

The aim of the Saudi health sector is to develop and provide high quality health services in every region of the Kingdom (MOP, 1985, p.92). Health services are provided in the Kingdom in three ways, namely:

- The MOH: It is considered to be the body responsible for public health and has most responsibility for providing health services (MOP, 1985, p.343).
- Other governmental sector (OGS), including: health services provided by the university hospitals in the Kingdom, health services of the King Faisal Specialised



- Hospital and Research Centre and medical services provided by some governmental bodies to their employees and their families. (Al Ammari and Al Turki, 1984, p.27).
- The private sector (PS) provides health services through its dispensaries, clinics, hospitals and pharmacies, under the supervision of the Ministry of Health, which has supported and organised this sector. This sector had thrived since the early seventies and especially in the eighties, due to increased oil revenue, which brought economic prosperity and the abundant availability of expatriate labour, due to government encouragement of investment in this sector (Al Harithi *et al*, 1999, p.285; Jeddah National Hospital, 1996, p.1). Table 2.1 illustrates these resources.

Table 2.1  
**Number of Health Centres and Dispensaries, Hospitals, Beds and the  
Manpower in Health Sector in 1997**

	MOH	OGS	PS*	Total	Rate per 10000 person
Health centres and Dispensaries	1737	0	611	2348	
Hospitals	180	39	84	303	
Beds	27058	8970	8185	44213	23.4
Physicians	14717	6806	8891	30414	16
Nurses	34739	16447	10800	61980	30.29
Pharmacists	746	766	382	5294	2.8
Allied health personnel	19385	9302	6540	35227	18.7

Adapted from: MOH, 1997, *Annual Health Report in 1418 H*, pp.93, 199.

\* It is difficult to see inefficiency in the private sector e.g. the ratio of physicians to beds as physicians also serve 776 private clinics (MOH, 1997, p.199) and 611 health centres and dispensaries in addition to hospital beds. Pharmacists also serve the patients in other sectors as most of them pay for their medicines as patients of MOH hospitals.

Health services in the Kingdom are provided through the two traditional channels: preventive and curative health. Recently, certain health education programmes were introduced (WHO, 1988, p.155). By health services the researcher means all those services that are provided to fulfil the health needs and wishes of those who require such services (Mustafa, 1993, p.50). These services are provided on three levels:

The first level: Primary Health Care, this is considered the first level of contact society members have with health services. It is provided through health centres that provide direct treatment, preventive and rehabilitation services. These services include health education, childbirth and childhood care, nutrition, vaccination against infectious

diseases, prevention of endemic diseases, treatment of common diseases and provision of the basic medicines (International Company for Publicity and Advertisement, 1995, p.17). The second level: General hospitals, which provide more specialised services. These provide all clinical and medical treatment or diagnosis services for general cases or medical treatment for certain cases (Hurstani, 1990, p.44). The third level: Tertiary hospitals, which provide specialised health care in all medical specialisations with the objective of treating the complicated and difficult cases that other hospitals cannot deal with (Hurstani, 1990, p.44), e.g. King Faisal Specialised Hospital and Research Centre.

## **2.2 Development of the Health Strategy in the Kingdom:**

Health services in the Kingdom have been developed through the five year development plans which commenced in 1970, in line with the government adoption of the resolution of the WHO that calls for health care provision for all by the year 2000 (WHO, 1988, p.155). The first development plan (1970-1974) and the second one (1975-1979) focused their health strategy on providing treatment services through quantitative expansion in a number of hospitals, beds and labour force (Al Harithi *et al*, 1999, p.70). The third development plan (1980-1984) saw the introduction of a focus on preventive health services in addition to treatment services (MOH, 1980, p.2). The fourth development plan (1985-1989) focused the state's policy on increasing the number of primary health care centres, in addition to developing systems and procedures for transferring patients for primary health care services to reduce their dependency on hospitals (MOP, 1985, pp.93, 350, 351). The fifth development plan (1990-1994) focused on continuing the primary health care programmes, the effectiveness of the health services and the provision of required resources and supporting their adequate utilisation and distribution. (MOP, 1990, p.363). The health strategy of the sixth development plan (1995-1999) was focused on raising the level of people's health, paying more attention to the fight against contagious diseases, attending to the programmes of primary health care and supporting the system of referral patients (MOP, 1995 b, pp.348, 349).



The health strategy of the current (seventh) development plan (2000-2004) is focused on developing health services through many policies such as: increasing the number of hospital beds, attention to hospital maintenance operations and provision of modern facilities, improving methods of hospital management and operation, provision of advanced diagnosis health services in accordance with international standards, implementing quality programmes in all health facilities, provision of work and procedures manuals in every hospital, implementation of the follow up and evaluation system of health services by usage of clear and specified scientific indicators, the application of the co-operative health insurance system to expatriates and studying the feasibility of its application to Saudis, expansion of training programmes within and outside the Kingdom and enhancing the role of the private sector in health services, focused on research and studies relating to improving health levels (MOP, 1997, p.10; MOP, 2000 a, pp.325-329).

For the first time, the seventh development plan (2000-2004) included implementing quality programmes in all health facilities. Moreover, it included a desire for implementing QA systems in hospitals. The policies and procedures supporting this direction were: focusing on the administrative aspect in order to upgrade the efficiency of the services provided and hospital operations, improving methods of management, attention to maintenance operations in hospitals and their provision with modern facilities, interest in using international standards and clear and specified scientific indicators, provision of work and procedures' manuals in every hospital, developing educational and training programmes and looking for the opportunities to increasing finance of the health sector. Still, there are many factors of TQM that depend on the role of the hospitals' management and its support of quality within the context of improving health services. The question arising here is whether such policies and programmes have been implemented, or are there still many challenges and problems that hinder their implementation?

Table 2.2 shows some indicators of health services' development from 1970 to 1998.

Table 2.2

**Indicators of Health Services' Development in the Kingdom, 1970 - 1998**

	1970	1998	Average annual Growth Rates
Hospitals	74	314	5.7
Health centres and Dispensaries	591	3506	5
Beds	9039	45729	5.5
Physicians	1172	31502	11.1
Nurses	3261	65526	11.2
Allied health personnel including pharmacists	1741	41763	10.6

Adapted from: MOP, 2000 c, *Achievements of the Development Plans: 1970-2000*, pp. 328-331.

**2.3 The Health Situation:**

Table 2.3 shows the general health indicators of health in the Kingdom.

Table 2.3

**General Health Indicators in the Kingdom**

	Unit of measure	Year	Indicator
The population provided with health care	%	1995	99
The population provided with health care in urban areas	%	1995	100
The population provided with health care in rural areas	%	1995	95
The population are provided with safe drinking water	%	1994	93
The population provided with an appropriate sewage system	%	1994	86
Babies with birthweight of at least 2.5 Kilograms	%	1995	95
Children's weights are appropriate to their ages	%	1992	93
Infant death rate	Per 1000	1995	21
Death rate for the mothers	Per 10 000	1993	1.8
Life expectancy at birth	Years	1995	71.4
Life expectancy at birth for males	Years	1995	69.9
Life expectancy at birth for females	Years	1995	73.4

Source: Al Harithi, Al Innad, Bait-Al Mal, and Al Kharashi, 1999, *Health in Century*, pp.272, 273.

In the Kingdom of Saudi Arabia there are a number of endemic diseases, such as bilharziasis, leishmaniasis and malaria, hereditary diseases, such as mongolism (Al Walifi, 1991, pp.347, 350, 353), infectious diseases, such as measles and mumps, occupational diseases, such as the diseases of the upper respiratory organs, and many others such as child diarrhoea (MOH, 1997, pp.40, 53, 283), joint pains, diseases



related to the digestive system (Al Walifi, 1991, p.353) and road traffic accidents (WHO, 1983, p.130), cardiac diseases, blood vessel diseases, cancer and chronic diseases (WHO, 1981, p.23). According to the WHO (1996), measles and tuberculosis are on the top of the list of the first ten most dangerous diseases in the Kingdom (Al Harithi *et al*, 1999, p.273). According to the field study prepared by Al Walifi (1991, p.303), the most widespread diseases in the Kingdom are those related to the digestive system, the respiratory system and those of the neurology system respectively.

The most dangerous factors that affect health are the percentage of premature births and use of tobacco which affects the rates of pectoral and cancer diseases (Al Walifi, 1991, p.303) and traffic accidents which causes 14% to 22% of the total deaths in the Kingdom (Al Mofty, 1985, p.28). According to MOH (1996) the most common causes of death in the Kingdom are due to unspecified or unknown causes, accidents especially road accidents and heart disease (MOH, 1997, p.74).

There are many regulations that contribute to the improvement of health in the Kingdom, such as the prohibition of consumption of liquors and the obligation for all expatriate workers to have a medical check-up upon their arrival and before they commence working in the Kingdom.

## **2.4 The External Environment:**

This covers the demographic, economical, cultural and educational factors as follows:

### **2.4.1 Demographic Factors:** Table 2.4 gives details about these factors.

Table 2.4

**Demographic Profile of Kingdom in 1999**

	Unit of measurement	Year	Indicator
Area	Sq. Km		2149700
Population	Million	1999	19895232
Citizens	%	1999	74.8
Non-citizens			25.2
Crude birth rate	Per 1000	1999	28
Crude death rate	Per 1000	1999	4.11
Annual growth rate for citizens	%	1999	3
Annual growth rate for foreigners	%	1999	1.3
Distribution of the population according to age and sex			
Less than 15	%	1999	46.2
15-less than 40	%	1999	37.3
More than 40	%	1999	16.5
Males	%	1999	50.1
Females	%	1999	49.9

Adapted from: MOP, 2000 b, *Population Characteristics in the Kingdom of Saudi Arabia (Demographic Survey 1999 AD)*, pp. 34-38.

It is evident from the above table that the population is relatively small, the highest age category is less than 15 years old and the number of males is greater than that of females.

**2.4.2 Economic Factors:** The Gross Domestic Product (GDP) for the year 1999 was SR 512.4 billion (MOP, 2000 c, p.82) and is expected to reach SR 555.7 in 2004 recording an annual growth rate of 3.16 % reducing from 3.2% in 1999 (MOP, 2000 a, p.142). This reduction is caused by the decrease of the annual growth rate of government service sectors and the crude oil and gas sectors (MOP, 2000 a, p.142). Although the world oil prices improved significantly and increased the revenues of the non-oil sectors and the government expenditure policies (MOP, 2000 c, p.3), many international and local challenges faced the government in the KSA: the instability of the oil market, the complications of the second Gulf war, the increase in the population and a need for increasing public services (WHO, 1988, p. 8; MOP, 1997, p.1). All these factors negatively affected the state's budget and hence reduced the resources allocated for the health sector.



Government expenditure on the Ministry of Health represents 85% of total expenditure on the Health sector, while the other governmental parties providing health services receive the remaining 15% (Mattar, 1992, p.52). The government expenditure on the MOH had increased through the first, second and third development plans from SR 177.1 million in 1970 to SR 10742.9 million in 1984 (Al Harithi *et al*, 1999, p.68). Then this expenditure started to decrease at the beginning of the fourth development plan. However in 1997 it was increased and became SR 10747 millions. See table 2.5.

The total amount allocated to the health sector represents 2.2% of the gross domestic product in the period ‘1990-1995’. This was a very low percentage compared to what is allocated to this sector in some Arab countries – 4% and worldwide - 5%. In 1995 the expenditure per head of population by the MOH was US\$ 110 (Al Harithi *et al*, 1999, pp.292, 269).

Table 2.5  
**Financial Allocations for the Ministry of Health, 1985- 1997**

Years	Millions SR
1985	8814.5
1986	8814.5
1987	8333.4
1988	7735
1989	7591.6
1990	8597
1991	8597
1992	10283
1993	8110.7
1994	8110.7
1995	7364.8
1996	7364.8
1997	10747

Adapted from: Al Harithi, Al Innad, Bait-Al Mal, and Al Kharashi, 1999, *Health in Century*, p.68.

**2.4.3 The Cultural and Educational Environment:** This includes the educational background and the education institutions that are directly connected to the health services, as well as health awareness, health practices and customs of the individuals, traditions and religious beliefs that affect hospital activities (Mattar, 1992, p.77). See table 2.6.

Table 2.6

**Clarifying the Demographic Distribution according to the Educational Level in 1999**

<b>Educational level</b>	<b>Percentage</b>
Illiterate	18.1
Can read and write	20.3
Elementary, intermediate and secondary education	49.8
More than secondary education	11.7
Total	100%

Adapted from: MOP, 2000 b, *Population Characteristics in the Kingdom of Saudi Arabia (Demographic Survey 1999 AD)*, pp.35, 36.

It is evident that the percentage of illiteracy, those who can read and write and those who are educated to a maximum of secondary level is high. Hence, there were low educational levels in the KSA. The percentage of illiteracy among females is double that among males and the percentage of educated males is higher than that of females at all education levels (MOP, 2000 b, p.36).

## 2.5 Hospitals in the Kingdom:

Hospitals are considered among the most important means of providing health services due to their more extensive resources, higher investment and more comprehensive services (Mustafa, 1993, p.50). The word “hospital” was derived from the Latin word “Hospitium”, which means keeping guests (Bloom, 1976, p.4). The American Hospital Association (1974, p.10) defined “hospital” as the organisation that includes an organised medical system that has permanent medical facilities including beds and medical services and that includes the services of doctors and nurses, which are utilised to perform the appropriate diagnosis and treatment on the patients.

The major function of Saudi hospitals is to provide medical treatment. However, there are some other functions, including: preventive and training services, as well as research and health studies, patient follow up after discharge from hospital, medical rehabilitation, health education, immunisation and exchanging employees and technical services with the Primary Health Care Centres (MOH, 1990, p.336). All these activities are performed through an environment of top quality services. On the other hand, the objective of private hospitals is mainly to maximise profits.



Hospitals in the Kingdom can be divided according to clinical aspects into two categories: general and specialised hospitals. As for ownership, hospitals can be classified into three categories: public, private (Hanafe, 1988, p.13), also the quality of the medical care given can also be used to classify hospitals into approved and unapproved ones. (Hanafe, 1988, pp.14, 16).

Government hospitals in the Kingdom are operated by full or partial operation contracts that are awarded to specialised companies. The number of these hospitals was 50 in 1995 (Al Idrraisi, 1995, p.127). Full operation means assigning the managerial, financial and medical tasks to the company in return for the contract amount. Partial operation means the operation of some services. The most common are contracts for cleaning, maintenance, catering and supply of a specialised labour force (Kurdi and Al Gahtani, 1995, p.120).

Hospitals in the Kingdom are considered to be an open system that is composed of a number of elements and sub-systems, which are interrelated and overlap. Also hospitals are affected by and effect upon their surrounding environments (Hurstani, 1990, p.50). This system includes the following:

**Incomes:** such as the labour force, those who benefit from the services, medical equipment and devices, raw and supporting materials e.g. medicine, funding and investment, medical regulations, administrative organisation, information and the physical working conditions (Sharaf, 1995, p.73).

**Activities:** Activities can be divided into medical and non-medical activities. Medical activities include the care of the patient, nursing, treatment and technical practices of the medical staff, which in turn include reception and acceptance of the patients, diagnosis, planning the treatment, implementing the treatment plan, follow up of the progress of the treatment results, medical follow up, medical research, medical education and training. Non-medical activities include administrative activities and general services (Shaheeb, 1988, p.19).

**Outcomes:** These include the outcomes relating to the condition of the patient upon discharge from the hospital, quality of the provided medical services and efficiency of

the hospital's management and feedback. The external environment affects the incomes, outcomes and activities of hospitals. Some of the components of the external environment are social, economical and psychological circumstances, religion and traditions, the general health system, public health, climatic conditions and environment pollution (Hassan, 1993, p.73).

In spite of the significant achievements that are evident in the hospitals of the Kingdom, there are still many issues and problems that need to be tackled and solved in order to raise the level of quality of the provided health services and to pave the way for the implementation of TQM.

Some of the most important problems that face the governmental hospitals in the Kingdom are as follows:

- **Labour Force Problems:** some of these problems are:
  - Health workforce strategies are not clearly specified (AL Mola, 2001, p.20; WHO, 1988, p.33). There is no connection between health education and the actual needs of the health institution's employees, and, in addition, there is no connection between health education and training and actual employment (Al Abd-Al Gabar, 1992, p.31).
  - Dependence in operating hospitals on the expatriate labour force imported from various countries and with diverse experience, scientific, linguistic and social backgrounds (MOH, 1990, p.343). The larger proportion of this expatriate labour force is from the Arab countries and from the countries of East Asia or other developing countries which do not implement quality programmes in their hospitals and their educational programmes. This situation has an adverse effect on the quality programmes. Moreover, there is the problem of high employment turnover among the expatriate labour force (Bin Saeed, 1994, pp.6, 7, 30), together with the difficulty of substitution with, and employment of Saudi labour due to the fact that a considerable proportion of the government hospitals are operated by contracting companies for terms of three years.
  - Low percentage of qualified Saudi labour in the health sector, particularly in the medical, nursing and medical support fields. Also, there is a scarcity of national high-qualified personnel especially in some specialisms (MOH, 1990, p.343).



- **Administrative Problems:**

- The health sector is still operating in the traditional administrative manner. This situation leads to inefficiency in administrative practices and utilisation of available resources (WHO, 1981, p.26). Hospitals are still suffering from big shortages in the skills and abilities of administrative staff at all levels (WHO, 1988, p. 62). Moreover, in some cases physicians are assuming managerial posts in hospitals although many of them had never received any management training (WHO, 1983, p.133).
- The deficiency of the continuous and long-term training and education programmes for hospital employees, training in administration and administrative techniques in particular. Also administrative training is considered to be insignificant in terms of allocating financial appropriations, as well as the shortage in trainers and training organisations (WHO, 1983, pp.133, 134). In addition, there are no well-organised programmes for administrative training such as training on quality systems (Al Gurashi, 1995, p.64).
- Deficiency in the health plan programmes (WHO, 1981, p.25). Health planning in the Kingdom is still suffering from a lack of efficiency and analysis of information that is required for predicting the factors that affect the development of health services. Such as information pertaining to the Saudi environment, for example, the health situation, the market, the service area, evaluation of human and financial resources and internal factors in the hospitals (Madkore, 1993, p 20).
- Limited co-operation between the general and private health sectors and limited public sector supervision of private sector activities (WHO, 1988, p.39). In addition there is poor co-ordination between the parties providing health services. These factors affect the quality of the services provided, resulting in the duplication of provision and hindering the integration and comprehensiveness of health services (Al Ammari and Al Turki, 1984, p.67).
- Deficiency in employment policies and job description in the health related occupations (WHO, 1983, p.137). Also there is a deficiency in management decentralisation, wage levels and motivation in the MOH hospitals (WHO, 1988, p.52).

- Insufficient policies and procedures for operations, especially formal procedures, and the absence of general criteria that govern the quality and efficiency of the services (MOH, 1990, p.344). This situation leads to variations and difficulty in the evaluation, supervision and solving of problems. For example, there is a deficiency in the evaluation of the job performance for the medical staff as they are appraised according to the evaluation forms designed by the Civil Service Directorate. These forms were not specially designed for medical staff, and therefore it is difficult to obtain sufficient information about the actual level of performance for this category (MOH, 1995, p.197).
- Poor information systems, which depend on the traditional methods and cover limited processes. This situation has resulted in inaccuracy of information, its availability, comprehensiveness and type. For example, incomplete medical files, non-availability of reliable quantitative and qualitative data that can be used in planning, evaluation and decision- making (WHO, 1988, p.62).
- Insufficient medical research, due to the shortage in national expertise that can plan for and evaluate research and a shortage in the appropriate, well trained, well motivated and required labour force for conducting such research (WHO, 1988, p. 40).
- An inadequate system for case referral amongst the providers of health services (MOH, 1990, p.345).
- Medical services need enormous expenditure. At the same time due to increasing pressure on hospital resources they are forced to contain costs and improve the quality level of the services provided.
- Among the other administrative problems that are directly connected to the quality of management are the following: misunderstanding of quality and its importance, top management not encouraging its implementation, the absence of an approach that is well organised for the evaluation of medical care across the Kingdom and the absence of written criteria and measurements for quality (Bin Saeed, 1994, p.8). Also there is a shortage of qualified and specialised staff with experience in TQM (Darbas, 1994, p.16), changing the quality plans with the changing of the company that operate the hospital and focusing on the short-term objectives (Al Gurashi, 1995, p.64).



MOH (1990, pp.343-347) presented other problems that face MOH hospitals as follows:

- **Problems of Buildings:** Government hospitals are suffering from the absence of quality measures for the care and design of hospitals. Some buildings are old, and inadequate to meet requirements and suffering from poor maintenance.
- **Problems of Equipment:** these result from the dependence on imported technology, non-availability of standard criteria that determine the type, number and specifications of the medical equipment and devices. This situation leads to diversity in hospital facilities. Bin Saeed (1994, p.8) added other problems such as the rapid advances and technological developments in the area of health equipment and devices and deficiency in preparing adequate and suitable maintenance programmes for these facilities.
- **Problems of Medical Supplies:** Failure of the annual planning round to define the actual requirements of medicines and medical supplies. Moreover, the reduction of the financial allocation for these medicines and medical supplies. Non-performance of contractual obligations from the side of suppliers, resulting in big shortages in medical supplies. In addition to the high level of consumption of medicines and medical supplies, there are inefficient systems of disposal of medicines and of controlling their consumption.
- **Problems of Nutrition:** contractors carry out nutrition provision in hospitals. The most important problems are: inaccuracy of the conditions and specifications between the MOH and the contractors, deficiency of the quantity and quality of the staff specialised in nutrition, deficiency in the organisational structure of nutrition staff in hospitals and a weak relationship between the MOH and the contractors.
- **Problems of the Services' Beneficiary:** These include:
  - A lack of awareness of the objectives of the Primary Health Care Centres and a low level of understanding regarding the role of the hospital.

- Beds occupied in hospitals by chronic disease cases that do not need clinical health services, but rather nursing or social care.
- Mustafa (1993, p.41) argues that there were no definitive criteria or levels in medical practices for the provision of services to patients. In addition, there are no well-organised efforts to protect the beneficiary of the health services.

## **2.6 Conclusion**

In the context of the development, the strategy and the objectives of the health sector in the Kingdom of Saudi Arabia, it is clear that the issue of quality comes in the context of the priorities of current state policies. This is an indication that there is some sort of a positive trend that has targeted the upgrading of the efficiency and effectiveness of this sector. Hence, this will be reflected in the improvement of quality in a comprehensive and integrated manner and pave the way for the implementation of TQM. In this chapter the researcher has presented the development of the health sector in the Kingdom since the beginning of the Seventies, the health strategy through the development plans, the health situation in the Kingdom including diseases and mortality, demographic, economical, cultural and educational factors that affect the provided health services. Finally, the researcher has looked at hospitals in the Kingdom, including the definition, characteristics, function, division and operation of the hospitals, hospitals as an open system and the problems in these hospitals.

In the next chapter, the concept of quality and the definition of quality in health services will be reviewed. It will also review the historical development of quality in health services and the dimensions of quality of care.



## **CHAPTER 3**

### **QUALITY IN HEALTH SERVICES**

#### **3.0 Introduction**

The issue of quality is very broad and correlated with practically every sphere of human activity (Al Furs, and Al Adeeli, 1995, p.15). However, quality is very important in the health sector, as it is a basic human right to get the best quality of health care, given the circumstances of the existing economic situation of the country. This chapter discusses some of the fundamental issues related to quality in health services; such as the concept of quality in health services and definition of quality. I shall also explore the historical development of quality in the health sector, different dimensions of quality of health services, philosophy of quality management and finally the relationship between quality and marketing.

#### **3.1 Concept of Quality in Health Services**

‘Quality’ according to Webster’s New World Dictionary is “the degree of excellence, which a thing possesses”. According to the Collins Gem Dictionary and Thesaurus quality is a “degree of excellence”. The above definitions imply that the term ‘Quality’ is related to the characteristics which a product or service may possess. Health services have different features. Quality in health services has many facets and dimensions relating to factors and perspectives such as “economic, regulatory, social, organisational, political, technical, human, ethical, scientific, and cultural environment” (Graham, 1990 a, p. xiii). Some of these elements may be elusive, intangible, immeasurable or, at least, difficult to measure. Therefore, the meaning of quality in health services has a number of dimensions and aspects, correlated with judgement about the definition, competence and the measurement of quality.

#### **3.2 Definition of Quality in Health Services**

There is no specific definition of quality, because it means different things to different people and “its content varies according to the situational and substance factors” (Vuori, 1982, p.42), and different definitions are suitable under different circumstances.

The roots of quality definitions were discussed by Greek philosophers who defined quality as ‘arête or excellence’ (Reeves and Bednar, 1994, p.419), quality as excellence also has been debated recently, as Roemer and Montoya-Aguilar (1988, p.3) define quality as “excellence or merit of thing or activity”. Quality can also be defined as “value”, as in the mid-1700s the orientation was to the customers and market relative to the price and by the 1800s the lack of quality was being lamented, thus there was interest in both “price and quality in a competitive market” (Reeves and Bednar, 1994, p.421). McLaughlin and Kaluzny (1994, p.12) also defined quality as “conforming to specifications; having a product or service that meets predetermined standards”. Youssef, Boyd and Williams (1996, p.128) defined quality as “successfully meeting internal and external customer expectations”. From the viewpoint of manufacturing, Morgan and Murgatroyd (1994,p.8) also agreed with the previous definitions as they provided many views of quality definition which include products, conformance to specification, customer and value.

Table No 3.1 illustrates the strengths and weaknesses of each of the previous definitions of quality.



Table No 3.1

**The Strength and Weaknesses of Each of the Previous Definitions of Quality.**

Definition	Strengths	Weaknesses
Excellence	Strong marketing and human resources benefits. Universally recognizable –mark of uncompromising standards and high achievement.	Provides little practical guidance to practitioners. Measurement difficulties. Attributes of excellence may change dramatically and rapidly. Sufficient number of customers must be willing to pay for excellence.
Value	Concept of value incorporates multiple attributes. Focuses attention on a firm's internal efficiency and external effectiveness. Allows for comparisons across disparate objects and experiences.	Difficulty extracting individual components of value judgment. Questionable inclusiveness Quality and value are different constructs.
Conformance to specifications	Facilitates precise measurement. Leads to increased efficiency. Necessary for global strategy. Should force disaggregating of consumer needs. Most parsimonious and appropriate definition for some customers.	Consumer does not know or care about internal specifications. Inappropriate for services. Potentially reduces organizational adaptability. Specification may quickly become obsolete in rapidly changing markets. Internally focused.
Meeting and/or exceeding expectations	Evaluates from customer's perspective. Applicable across industries. Responsive to market changes. All-encompassing definition.	Most complex definition. Difficult to measure. Customers may not know expectations Idiosyncratic reactions Per-purchase attitudes affect subsequent judgments. Short-term and long-term evaluations may differ. Confusing between customer service and customer satisfaction.

Source: Reeves and Bednar, 1994, "Defining Quality: Alternatives and Implications," *Academy of Management Review*, p.237

"Health is not a unitary concept. Ideally, it includes all possible dimensions" (Blaxter, 1992, p.31) as well as biological, physical environment, social, economic and cultural environment (Wenzel, 1992, pp.9, 10). The World Health Organisation (WHO) defined health as "a state of complete physical, mental and social well-being and not merely the absence of disease and infirmity" (Wenzel, 1992, p.10). The term 'health' has been used to mention the health services organisation in tertiary level private and public hospitals.

It becomes clear from the previous section that both 'quality' and 'health' have many dimensions that makes it difficult to define quality in health care. It is important when quality is defined in this study to consider the characteristics of services such as "intangibility, heterogeneity and inseparability. Intangibility is used to describe services which may be difficult to be counted, measured, inventoried, tested or verified in advance of delivery to ensure quality. Services have customers with very heterogeneous needs, inseparability mean that the consumer not separate from production, rather quality occurs during the delivery of services" (Morgan and Murgatroyd, 1994, p 10).

Graham (1990 b, p.9) says that the definition of quality in health care includes technical, scientific and artistic elements. Vuori (1982, p.35) states three ways to define quality in health care "nominal, content analysis, and operational definition". The nominal definition aims at an all-embracing, logically coherent definition. The content analysis definition defined it as lists of definable and measurable components. And the operational definition defined it by means of methods and tools used to measure it. Donabedian (1986, p.100) defined quality as "the maximization of patient's satisfaction considering all profits and losses to be faced in a healthcare procedure". Although Donabedian's contribution to the improving quality is high, but his definition tends to be considered static as all the field towards a continuous improvement of quality (Theodorakioglou and Tsiotras, 2000, p.1154).

Quality can also be defined from the perspective of those who utilise health care services, such as "patients, providers and society" (Bonoob, 1993, p.45). Patients may judge quality by the standards of technical care, which includes accurate diagnosis and the best possible treatment. It also includes the artistic concept of quality, which means good interpersonal relationship between providers and patients, and for amenities of care such as cleanliness (Bin Saeed, 1994, p.12). Providers include physicians and other technical persons, administrators, owners and the third-party payers. Physicians and other technical staff may be interested in accurate diagnosis and the best possible treatment, and current available medical knowledge and technology. The health care administrators are interested in delivering the greatest number of services within their budget. The third-party payers such as government



and insurance agencies' interest are to provide the best possible services at the lowest possible cost. (Bin Saeed, 1997, pp.40, 41).

The Institute of Medicine (IOM) of the National Academy of Sciences (1990) defined quality of health care from 100 different definitions of quality collected from various sources as “the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge”(Lohr and Harris-Wehling, 1991, p.7). In this definition IOM avoided to mention any financial constraints (Wareham, 1994, p.98).

In general, the definition of quality in health care was developed from conformance to specifications and included not just patients but all stakeholders and many elements such as continuous improving process, culture, human resources and included all the health services provided as suggested from the pioneers of TQM. Whichever definition of quality adopted, it must be operational, measurable and acceptable.

It has become clear from reviewing previous definitions of quality, defining quality has many aspects and different dimensions. It includes many concepts as management, clinical, sociability, behavior and technical. Also it different according to how it is defined.

For the purpose of the dissertation the definition of quality of healthcare will be used as suggested from a Saudi health care system perspective:

***‘the degree to which effective and efficient health services attempt to improve the ‘health status’ and ‘satisfaction’ of the community, given the current state of knowledge, and technical and financial constraints’.***

Properties of the above definition are as follows:

<b>The degree:</b>	Shows that quality is a dynamic attribute, shows commitment to continuous improvement and quality is an ongoing activity
<b>Effective and efficient health services</b>	Probability that the benefits of health services under average conditions of use, the goal being to achieve maximum efficiency without lowering effectiveness

<b>Health status:</b>	As defined by the patients, government, physicians and other major agencies of the health sector
<b>Satisfaction:</b>	A comprehensive vision that takes all the perspectives of the internal and external customers.
<b>Knowledge, and technical and financial constraints</b>	Implies a dynamic state for each of the three conditions and holds both government and physicians responsible for using the best available knowledge, technical and financial resources to improve the health status and the satisfaction of the community

This definition implies that there should be a net benefit to the target population through the improvement in structure, process and outcome, reflected in an improvement in health status, satisfaction and other outcomes. Health authorities to adopt this definition should decide on their target population, gaps and deficiencies in the structure, process and outcome measures, the existing state of knowledge, and technical and financial constraints. In general, the definition is in line with the principles of TQM, and contributes to the aims of the research, such as focusing on the consumer, resources and improvement. It is suitable for this study as it is applied in Saudi and in government hospitals.

### **3.3 History and Development of Quality Management in Health Services:**

The history of quality of care in health services goes back to the time of Hammurabi (1700 BC) who promulgated a legal code which included “specific and drastic penalties for surgical incompetence, also determined the salaries of physicists” (Ellis and Whittington, 1993; Reerink, 1990, p.199; Shihatta, 1995 b, p.53; Shihatta, 1995 c, p.81). The idea of quality of care as a management system began in the first decade of the twentieth century. It is rooted in the industrial field and applies scientific methods and tools to the health sector (Bin Saeed, 1997, p.9).

In the UK, the Royal College of Physicians, in 1518, supported the idea to “uphold the standards of medicine for providers and patients” (Ellis and Whittington, 1993, p.10). In 1908 Groves evaluated the results of surgery to study the rates of mortality in 50 hospitals. His study showed the necessity to investigate some diseases, and to improve and classify the norms of operations and disease (White 1992, p.xviii). Florence Nightingale (1820-1910) provided her study that contributed to the establishment of the idea of quality. She advocated a uniform system for collecting



and evaluating hospital statistics. Her study drew attention to the relationship between nursing care and the rates of mortality during the war. It included the need to improve cleanliness, health, nutrition, and organised operations and daily process in the hospitals (Graham, 1990, p.6).

In the USA, Flexner published a report in 1910 about the standards of medical colleges. This report led to the closure of 60 medical colleges in the USA in 1920 (Ellis and Whittington, p.26) as a result of poor standards of theoretical and practical education of medical care. In 1915, the American College of Surgeons developed the “Hospital Standard Programme”. One of the objectives of this programme was to establish an official method for the approval of hospitals and to verify the quality of the rendered health services therein. The Programme is composed of five main points: assuring the importance of organising the personnel, monthly meetings, examining the medical records, effective supervision and accreditation of doctors for practising in the medical profession (Affeldt, 1987, p.235). In 1916, Ernest Codman advocated the evaluation of the end results of care, not just as clinical efficiency, but also as economic, social, organisational and managerial activities (Donabedian, 1985, p.244). In 1918, the American College of Surgeons “inaugurated the hospital standardisation programme”, that aimed to devise official methods to sanction hospitals, and to assure good care in hospitals (Graham, 1990 c, p.7).

In 1950 Paul Lembcke published the idea and term of “Medical Audit”. His studies showed the importance of “feedback” of medical information to physicians to improve their performance and patients’ “benefits”. At the same time Sheps asked to refine and develop the methods of measurement by co-operation with the “clinicians, administrators, and statisticians”, (White 1992, p.xviii), in order to assess and evaluate the quality in hospitals. In 1951, the Joint Commission on Accreditation of Health Care Organisations (JCAHO) was established to evaluate the hospitals’ delivery of health care with qualified practitioners, and to develop managerial and clinical standards. In 1953, JCAHO published the book about standards for hospital accreditation that was extended to include specialised health organisations such as those for older people (Rich, Yaniglos, Daniel and Halabis, 1993, p.782).

By 1964, the foundations of almost all the major approaches to quality assessment had been laid down (Donabedian, 1985, p.344). It was simply emphasis on “criteria and standards and the use of outcome as measures of quality” (Sanazaro, 1980, p.38).

After 1964 assessment process studies became interested in some basic methods such as “the medical records, criteria formulation, consensus, screening efficiency and validity and decision analysis and criteria of care” (Donabedian, 1985, pp. 244-258). While assessment outcome studies were interested in “greater sophistication in making adjustments for differences in case mix that might influence outcome independently of the quality of care and identification of adverse outcomes is merely a trigger to the assessment of antecedent process. And studies related to the structure were interested in the relationship between structural attributes and quality have been primarily concerned with the attributes of the individual or institutional providers of care” (Donabedian, 1985, pp. 244-258).

In 1970 a special programme was developed for the approval of the establishments that specialise in psychological health care; and in 1975, the concept of standardizing the criteria and adopting a system for accreditation of outpatient medical clinics emerged. In 1988, a programme was made for the standards for household health care (Bliersbach, 1993, p.94).

Also in the beginning of seventies, JCAHO adopted the programme of medical audit, but it did not succeed because it was a descriptive programme and did not have any explicit criteria. Based on these grounds, JCAHO introduced the idea of QA for the purpose of focusing on assessing quality. In the mid seventies, the American Federal Law imposed on hospitals the necessity of introducing quality programmes in some of their departments (Palmer, Louis, and Hus, 1985, p.751). In 1979, it changed its standards to include all the management and clinical departments and published a book on quality standards (Joint Commission on Accreditation of Hospitals, 1981, pp.151-154).

In the same period in 1972, the American Federal Government established the professional Standards Review Organisation (PSRO) to monitor the quality aims in order to achieve effectiveness and optimal utilisation of resources. This programme contributed in developing three methods namely the evaluation method for medical care, the review method for optimal utilisation of resources and the method for time analysis (Goran, Roberts, Kellogg, Fielding and Jessee, 1975, pp.3-5).



In 1984, JACO adopted the idea of approving the methods of QA for the assessment and supervision of health care services. In 1985, JCAHO developed a ten-step process to help hospitals to develop the quality assurance programmes. In 1988, JACO defined and described the indicators to be supervised and assessed. In 1989, JACO published the required features in the activities of risk control and provided the index for hospital approval (Shihatta, 1995 b, p.55). In 1992, JCAHO modified the name 'quality assurance' to 'continuous quality improvement', and 'quality assessment and improvement' and the terms 'continuous quality improvement' and 'total quality management' became widespread. Standards were developed for management, leadership, and statistical methods (Appel, 1991, p27) and for the development of a national system of accreditation of hospital such as in Australia and France (Wong, 2002, p.206; Giraud, 2001, p.111).

In 1979, value for money initiatives have featured in the NHS and there was new orientation to three elements: the superiority of the market, individualism and a belief in strong government (Bin Saeed, 1997, p.22). In the early 1980's the UK National Health Service (NHS) reforms led to general managers and senior directors being given responsibility for quality assurance and in 1989 the White Paper "injected incentives into NHS and private sector to compete in terms of quality, especially required the introduction of medical audit" (Shaw, 1993, p.108). According to Shaw (1993, pp.107, 114) QA in UK health services has developed since the mid -1980s and there were many factors driving it including "consumerism, clinical professions, parallels and NHS reforms, NHS policies contributed to the "increasing determination of the clinical professions to maintain standards and by general consumer movement to know more about services". In 1985, the Annual Report for health services in the UK was interested in getting the best out of resources in terms of maximising the services to patients by improvements in the structure and management, accountability of health authorities, better use of available resources of manpower and interest in costs which was embraced with the policy of competition (Bin Saeed, 1997, p.24). In 1988 the survey of the NHS by the York University team indicated that a wide range of QA activities were taking place at all levels of the service. However, they were frequently uncoordinated and needed some formula to consolidate the management of these various initiatives. In 1990, the survey of NHS by ODI Mosaic Management Consultancy Group indicated that most of managers surveyed had established some



type of QA system and were happy with it, but had not established TQM although it was planned (Kock, 1992, p.10). In the 1990s there were many significant changes in healthcare in the UK such as: in 1991 the 'Citizen's Charter' was introduced and the government committed to "improving the quality of NHS provision at all level, increasing the choice available to everyone within NHS, raising the standards within NHS, describing clearly what those standards are and what can be done if they are not achieved and ensuring as taxpayers that receive the best possible value for money" (Morgan and Murgatroyd, 1994, p.70). By early 1993 there were many forms developing such as "a major restructuring of the NHS from the usual layered bureaucratic pattern to create purchaser and provider unites, contracting between purchaser and providers and encouragement the provider unites in which a degree of competition can drive quality" (Morgan and Murgatroyd, 1994, p.69). Since 1998 the NHS developed a comprehensive strategy for quality improvement. This includes national guidelines and standards for clinical care, a national system for inspection and monitoring, and a requirement for all NHS organisations to implement quality improvement strategies (Roland, 2001, p.66). In general, "the NHS established the use of quality as a key strategic" (Thompson, 1995, p.70). Pfeffer and Coote (1991, pp.4,5) discussed many definitions of quality, including "the traditional approaches to convey prestige and positional advantage, the scientific approach which is based on the idea of fitness for purpose and conformance to standards, the managerial approach that is based on the idea of excellence and customer satisfaction, the consumerist approach to empower customers". Finally, Pfeffer and Coote suggested the democratic approach was to "achieve common goals and meet individual needs, "it understands that the public has a complex set of relations with welfare services, not just as a customer" Pfeffer and Coote (1991, p.i). Keat and Abercrombie (1991, p.3) believe that "meeting the demands of the 'sovereign' consumer becomes the new and overriding in situational imperative".

In developing countries, the social, political, economic, cultural, religious and geographical features influence the structure, process and the outcome of quality of health services. These features may also influence the quality assessment methods of these services. In developing countries, this issue has not been given due importance. The issue of quality and what level of quality must be provided is still under discussion especially in poor countries. Some developing countries suffer from many



problems, such as poor resources for health care, poor management that is reflected in planning, recurrent expenditures and poor standards of care. All these problems are reflected in the limitations of developing quality in health services. According to Roemer and Montoya-Aguilar (1988, p.24) less work has been done to assess the quality of care in the developing countries. According to Saleh (1995, p.15) the health services in these countries are generally inefficient, low in quality and unreliable. In the eighties a few quality assurance programmes were developed in some of the Gulf countries' hospitals. The first comprehensive programme of quality assurance was implemented with the national health system in Kuwaiti in 1985 (Banoob and Gerlach, 1989, p.68).

### **3.4 Dimensions of Quality of Care**

Quality is a comprehensive concept with numerous dimensions. These are also known as attributes or characteristics. Many authors have already dealt with these dimensions:

Linsk (1990, p.222) divided quality into two basic types of attributes, "primary" and "secondary".

- Primary attributes means physicians' responsibility for "finding and treating the disease rapidly without unnecessary acts",
- Secondary attributes include "efficient admission procedures, polite personnel, functioning elevators, clean floors, responsive dietary programmes, prompt laboratory and x-ray turn-around etc".

According to Donabedian (1990 b, p.1115) dimensions of quality include "efficacy, effectiveness, efficiency, optimality, acceptability, legitimacy and equity".

The Joint Commission on Accreditation of Health Organization (from Wilkinson, 1990, p.22] mentions the following dimensions of quality:

- **Efficacy:** Is the care/procedure useful?
- **Appropriateness:** Is it right for this patient?
- **Accessibility:** If right, can this patient get it?
- **Acceptability:** If right and ready, does the patient want it?
- **Effectiveness:** Is it carried out well?
- **Efficiency:** Is it carried out in a cost-effective way?

- **Continuity:** Did it progress without interruption, and with appropriate follow-up, exchange of information and referral?

Maxwell (1984, p.1471) offers six dimensions of quality in public services:

- Accessibility: location of and waiting time for services
- Relevance: of type pattern of services to needs of population
- Equity: fairness of provision for different groups of people
- Efficiency: economy of resource use and value for money
- Acceptability: to the public of services available
- Effectiveness of services provided

Koch (1992, pp.2, 3) agreed that the quality in public services has at least the six previous dimensions, the dimensions related to relevance and equity are more the province of planners than clinicians, also efficiency is of importance to all as without efficiency, accessibility and, to a certain extent, effectiveness can not be achieved.

As is evident from above, some dimensions such as effectiveness, efficiency, accessibility, legitimacy, equity, and measurability get their place in all aspects of quality in healthcare. These dimensions are discussed below:

**3.4.1 Effectiveness:** is “ the ability to attain the greatest improvement in health now achievable by the best care” (Donabedian, 1992, p.41) “or can be expected to be achieved”(Donabedian, 1990 b, p.1115). Effectiveness is limited to what technology can achieve, what can be expected to occur, and what quality can measure, but this involves using scientific knowledge and technology, expectations or probabilities, conceptualisation and measurement (Donabedian, 1992, p.42). It depends on providers’ abilities, skills and the right performance. For example, physicians’ effectiveness means their ability and skill to use the science, knowledge and technology to accomplish the preventive, therapeutical and consultative services.

**3.4.2 Efficiency:** is “A measure of the degree to which the cost of resources used in a diagnosis, treatment, or procedure are matched by benefits to the patients” (MOH,



1999, p.1). It is simply a measurement of the cost effectiveness and compares input with output. The World Bank offered two kinds of efficiencies, “allocation efficiency” which provides the best output value from use of the allocation of resources, and “internal efficiency” which is the avoidance of all wasteful or unnecessary care, process or cost, for example, in developing countries there is evidence of inefficiency in using managerial resources (McPake, 1993, p.1397). Donabedian (1990 c, p.1168) distinguished between two types of efficiency. “Production efficiency” refers to the cost of services, which are used by providers in health care, and “clinical efficiency” refers to the cost of services, which result from the health care provided. Efficiency can be enhanced by lowering costs or by improving the effects of health care, or by realising both at once.

**3.4.3 Optimality:** is the balance between the cost and the effect of benefits in health care (Donabedian, 1992, p.41). It aims to provide better care for the patients and society by using the available resources to realise the best benefits at a reasonable cost. From an economic perspective, optimality may be achieved when the “marginal utility exceeds marginal costs” (Vuori, 1982, p.48). The need for optimality or a cut-off point for optimum level of care arises because resources are limited, and even if the most efficient means for attaining certain objective are used, it is most probable that beyond a certain point even useful additions to care are likely to produce smaller and smaller improvements in health. Practically, there are many problems in collecting, assessing and comparing information about costs and benefits in health care. It is extremely difficult to evaluate value for money in healthcare especially in private health. Perhaps the reason for this disparity is the “social financing of care and the divergence in valuations placed on survival and function” (Donabedian, 1990 c, p.1169).

**3.4.4 Acceptability:** means the adaptation of health care to patients and their families. The following six properties of acceptability have been mentioned by Donabedian (1990 b, p.1115).

Accessibility: is the patients’ ability to obtain the health services when they need them (Vuori, 1982, p.37). It is an important dimension, because the degree of difficulty for patients in obtaining the services can lead to an increase in disease and mortality rates, which can be avoided. Access to health services includes

geographic access, income access, social access, institutional access, and linguistic access. (Khuddiar, 1994, pp.10, 11).

Amenities of care: means all services that are not related to health care, but increase patients' satisfaction and their eagerness to pay for these services, such as private rooms. Patients perceive that other dimensions of care are more important (Donabedian, 1990 b, p.1116).

**The relationship between patients and practitioner:** refers to the behaviour of personnel providing health care to patients, such as empathy and respect. These contribute to some fundamental patients' rights to do with their care. It also contributes to patient's co-operation (Donabedian, 1992, p.45). From a wider perspective, interpersonal relations extend to the relationship between all providers and between providers and society.

Patient preferences to the effectiveness of care: means the "benefits and risk" of treatment with patients being able to choose, as illness and health mean different things to different people depending on their "occupational requirements, social situations, or psychological makeup"(Donabedian, 1990 b, p.1117).

Patient preferences as to the cost of care: It is of more concern to patients themselves, or insurance companies, or other third party payments (Donabedian, 1992, p.45). Acceptability means that physicians or other health care providers must involve patients in the treatment process to a level that is accepted as the right of the patients. This right is determined and defined by norms and cultural values of a society.

Continuity: means the provision of the necessary health services to patients without any unnecessary interference, cessation, or unnecessary repetition of diagnosis or treatment, for instance it is desirable that a patient should continue to consult the same physician who knows his or her health status and history (Khuddiar, 1994, p.12).

**3.4.5 Safety of the Environment:** This focuses on the reduction of the probability of medical risk such as inflammation, or any safety issues involving patients, visitors, and employees. Practically all health services carry some risk, so it must imply "net benefit" (Lohr and Harris-Wehling, 1991, p.6).



**3.4.6 Legitimacy:** is taken as “conformity to social preferences as expressed in ethics, principles, values, norms, mores, laws, and regulations” (Donabedian, 1992, p.47). This simply means the acceptability of care to the society with consideration to the acceptability to the individual interest for the welfare of entire society. In the KSA, the government puts systems depending on social characteristics that are derived from its culture, religion and literacy (MOP, 1995 b, p. x).

**3.4.7 Equity:** may be taken as justice or fairness in the distribution of care and its benefits to the whole population. Practically, it may be impossible to provide every kind of health services facilities to everybody. However, a health system and the government must take the responsibility to achieve the main aims of equity that include the option of freedom, equality, providing at least a minimum level of health care to everyone, ensuring that the people who need the services can obtain it and providing health services with high quality and efficiency (Al Hader, 2000, pp.176, 177). Two elements can be discerned relating to equity. Firstly, “there has been interest in how households may react differently to the imposition of user charge depending on their income level and secondly, depending on their residence in an urban or rural environment” (McPake, 1993, p.1399).

Gaster (1995) discusses measurement as the first step to quality and Donabedian (1992) discusses evaluating the diminutions of quality. **Measurability** is one of Donabedian’s important contributions as he provided three approaches to assessing the quality ‘structure, process and outcome’ (1992, p.48). The quality of care should be measurable using appropriate, reliable, valid, acceptable, sensitive, specific, documented, flexibility, clarity, inclusive, concord, clinical adaptability and patient responsiveness criteria (Jackson, 1992,p.73). According to Ellis and Whittington (1993, p.25) some aspects of the science of technical care are directly measurable, for example, efficiency and effectiveness of a technology. Other aspects, such as knowledge, attitudes and values are more difficult to quantify since none of these variables is directly observable and therefore indirectly measurable. Improving and refining the measurability techniques of different quality attributes and the link between measurability and these attributes will help to define quality in more explicit terms. According to Vladeck (1988, p. 111) health care must be defined as adequacy



of health services and how they should be measured and what is acceptable rather than what is optimal.

The last dimension of quality is **adaptiveness**: Defined quality is not easy and there is no fixed definition of quality because quality is linked to individual values and expectations of the individual within a community (Sewell, 1997, p.20). In discussing the issue of quality of health services the adaptation of quality with the health system environment is an important element, and adaptation is an important attribute of quality. Keeping in view the complexity of the demographic, political, cultural, social and economical variations, health situation and the kind of disease affecting the population, other sectors which influence health and a wide range of customer expectations, it is important that quality is as flexible as possible (Bin Saeed, 1993, p.p58-61). Also health system infrastructure that includes “resources and their production, organisation, economic support, management and delivery of services” may influence health services and their quality, however, they should be backed by the necessary legislative and policy framework (Roemer and Montoya-Aguilar, 1988, pp.19, 20). Flexibility in terms of meeting the differences of the previous elements that may differ widely depending on time and place in order to achieve quality in a cost effective manner. This could make the quality management system popular and enhance its credibility among its various elements. For example, there were many considerations related to the environment in KSA should be kept in mind when discussing the quality in health care such as:

- The population of the Kingdom is divided into Urban and Bedouins. Each of the two societies has its own economical, social and cultural characteristics that are reflected in their behaviour pertaining to health and sickness as well as the type of diseases.

- KSA is a developing country with a high per capita income, but now faces a reduced budget, the education rate is not high, the provision of health care services is mainly the responsibility of the government responsibility, and health is a high priority subject for the government and most of the population do not have health insurance.

- Quality of care in KSA should consider the current practices, traditions and social customs in the Saudi society and how they affect the behaviour of individuals. This is because such an understanding will assist those who are in charge of such quality programmes in identifying the correct ways of presenting the service and determining the available social beliefs, values, norms and behaviours to benefit from them in



developing the services. As well, such values play an important role in determining the general frame of people's attitude towards health, sickness, treatment and health education, thereby affecting the educational programmes in hospitals and programmes of quality improvement such as patient satisfaction.

Adaptiveness is important in the strategy of quality and TQM as the hospital working in the dynamics environment. This strategy may be focused on “ flexibility, responsive marketing, competitiveness, empowerment and network” (Godiwalla, Batra, Johnson and Godiwalla, 1997, p. 203)

It is clear from the above discussion that science, individuals, and society play an important role in the dimensions of quality. Quality is assessed relative to what is currently attainable, therefore, the appropriate balance between different dimensions of quality should be made, as they may integrate or they may also conflict. Emphasis should be on the dimensions, which are compatible with the specific social, cultural and ethical norms and perspectives of a specific society. For example, out of a variety of medical technologies available, a government has to decide very carefully when selecting the most effective technology in relation to their environment.

### **3.5 Philosophy of Quality Management**

There are many different philosophies related to quality management, such as quality control, quality assessment, quality assurance, TQM, continuous quality improvement etc. These philosophies were developed through many stages for achieving quality. These philosophies are discussed below, briefly.

**Quality Audit:** A quality audit is a “systematic and independent examination to determine whether quality activities and related results comply with planned arrangements, and whether these arrangements are implemented effectively and are suitable to achieve objectives” (Jorgensen, 1998, p.29). The UK NHS defined a quality audit as a“ systematic process and referred to it respectively as routine and regular”(Packwood, Kerrison, and Buxton, 1992, p.192). Quality audits can be categorized as follows: “audits of policies and objectives; audits of performance against company objectives; audits of plans, system and procedures; and audits of execution” (Robins, 1992, p.815). The audit is a critical element in evaluating performance, hence it must be recorded in a structured manner with numerical

measurements, and is significantly influenced during the planning stages, process and other activities, the auditing process is not an adversarial activity; it is designed to verify whether arrangements are implemented effectively, the process is an endless loop of planning, auditing, reporting and correcting. The audit document is a living document changing and improving all the time. Audit elements should reflect the importance assigned to the activity (Jorgensen, 1998, p.31). There were similar terms in health care such as ‘medical audit’, which can be defined as “the systematic, critical analysis of the quality of medical care, including the procedures used for diagnosis and treatment, the use of resources, and the resulting outcome and quality of life for patients,” (Fernandez, 1991, p.12).

**Quality Control (QC):** The term ‘Quality Control’ can be defined as a “system that aims to minimise variation of product or services and process from standards” (Ellis and Whittington, 1993, p.249). Wilson (1987, p.45) exhibit 11 lists of QC system that would be found in place in most hospitals (see table 3.2).

Table 3.2  
Quality Control System

Finance	Daily and weekly balancing. Double signatures
Nursing	Annual check of nursing credentials. Incident reporting, or checklists, sponge counts, foot-printing newborns
Engineering	Weakly testing of back-up generator. Testing of all electrical equipment brought into hospital
Fire and disasters	Monthly fire drills, evacuation procedures, extinguisher inspections
Radiology	Film review prior to departure of patient. Temperature checks of processor. Does measurement procedures
Laboratories	Use of test samples, daily calibration tests of auto analysers
Medical records	Quantities and qualitative analysis
Pharmacy	Narcotic counts, word stock inspections
Rehabilitation	Infection control procedures with physic equipment and media
Central supply	Sterilizer tests
Central stores	Random inventory checks
Food services	Inspection of fresh food and vegetables on loading dock. Hand washing and other sanitation procedures. Temperature checks of refrigerators and hot food
Personnel	Performance appraisal programme

Source: Wilson ,1987, *Hospital Wide Quality Assurance: Models for Implementation and Development*, p.45.

Quantity control (QC) necessarily implies that the worker should be able to produce products at the specified standards. Therefore, QC requires setting standards of service or process, monitoring its achievement and using inspection and statistical



quality control techniques that accept some variation (Ellis and Whittington, 1993 p.133).

**Quality Assessment:** Quality assessment can be defined as “a judgement concerning the process of care, based on the extent to which that care contributes to valued outcome” (Thaver, 1995, p.53). Quality assessment means measuring the level of quality by using standards, answering what are the strengths or weaknesses in the quality of health services, but without any endeavour to modify or improve the system. Donabedian contributed to the measuring and evaluation quality of healthcare when he provided his model which includes structure, process and outcome (see table 3.3). He has known fondly by his students as “Mr. Structure-Process-Outcome” (Fitzhugh, 2001, p.137).

Quality assessment is important for analysis and feedback perspective for health services, which attempts to explain the current position against objectives and the possibility of improvement. Shepherd (1999, p.73) suggested the use of quality assessment as a diagnostic tool in management not just as a measurement of customer services. Now, there are many standards of quality such as the International Organization for Standardization (ISO) 9000 which certification may eventually become necessary to survive global competition (Gatchalian, 1999, p.389). Donabedian (1990 a, p.22) considers quality assessment as “an administrative device used to monitor performance to determine whether it continues to remain within acceptable bounds”. The purpose of assessment is to improve the outcome or effectiveness of the programme as it shows accomplishments and the difficulty of the programme (Roemer and Montoya-Aguilar, 1988, p.13). Wells (2002, p.28) explained two main types of quality assessments that are ratings by patients, and measurements of clinical performance

But quality assessment on its own is not enough as there are many problems in assessing quality.

**Quality Assurance (QA):** The British Standards Institute defined quality assurance as “a management system designed to give the maximum confidence that a given acceptable level of quality of services is being achieved with the minimum of total expenditure” (Ovretveit, 1992, p.114).

These definition indicated that the programmes of QA are distinguished by providing a systematic way of “assuring the provision of services such a mix of diagnostic and therapeutic services as is most likely to produce the optimally achievable health care outcome for patients, consistent with the state of the art of medical science, and with biological factors, the effective use of resources utilisation to lower the costs and the level of risk, the highest patients’ satisfaction with the health system and the result obtained” (Ellis and Whittington, 1993, p.23).

QA contributes to the effective use of the resources, the outcome of health services and is closely related to marketing. QA is an important element of the planning, management and evaluation process for healthcare (Roemer and Montoya-Aguilar, 1988, p.45). Ellis and Whittington (1993, pp.7, 8) discussed four reasons to applied QA, which includes economical, social, political and professional. From the traditional view, the QA system attempts to achieve health services which conform with standards, identifying and finding solutions for problems. But now, there is a need to make continuous improvements to prevent problems with a comprehensive view for all services not just clinical services. Perhaps that is why QA is still limited to containing the cost and unnecessary care and waste, increased competition, and improving the quality level in general, as it is focused on being the norms, individual implementation (Dimant, 1991, p.207) and many other attributes.

**Total quality management (TQM):** Some authors use the terms Quality Management (QM), Total Quality Management (TQM), Continuous Quality Improvement (CQI) to give the same meaning in the field of health (Shortell, 1995; Rakish, Longest and Darr, 1992). There are little differences among these terms, as ‘Total’ means everything, ‘continuous’ means never ending. CQI can be defined as a “managerial philosophy that favours a supportive organisational structure and culture and the widespread use of scientific methods of process understanding and enhancement” (Counte and Meurer, 2001, p.197). In this study TQM will be used to give the same meaning as CQI.



### **3.6 Relationship between Quality and Marketing**

Quality is recognized as one of the important part of a strategy to remain competitive in any business. In hospitals, implementing the quality management system correctly acts as a marketing tool in two ways: it helps in providing more reliable services according to the customer's requirements and it reduces service cost by standardising the quality of care provided (Saddique, 1995, pp.1, 19).

Yasin and Alavi (1999, p.18) state that TQM can be used as a tool to increase market share. This argument may be used to justify the application of TQM in hospitals as some healthcare managers are reluctant to make an investment in TQM.

Kotler and Clarke (1987, p. 333) indicated that in hospitals, the strategy to improve the quality level over the time through "better selection, training, rewarding of employees and improving facilities leads to improved market interest and response". The elements of this strategy include the elements which are considered in quality and TQM (see chapter 5). They also indicated the relationship between sales and quality level that shows "the higher perceived quality leads to higher sales, but the very high quality may not add much additional sales". According to them, this refers to the market perception of quality, this perception may be incorrect from clinical standpoint, but the market acts on the basis of what it perceives. The consumer market is unable to judge clinical care, and will often judge the service aspects of what is offered: the friendliness of the provider, the design and atmosphere of facilities and so on (Kotler and Clarke, 1987, p.333).

Rynne (1999, pp.10-14) mentioned that quality and TQM "needs life support from the marketing organizations". He argues that some of the marketing approaches taken by hospitals today may affect the level of quality. For example, "increasing emphasis on relationship marketing (relationship with patients, plan enrolees, providers and heath plan planner), movement involves a commitment to providing better service and are emphasis on appealing directly to the consumers, corporate culture, creating of marketing function especially, attention to physicians and management". Also Godiwalla and Godiwalla (2002, p.27) mention strategic process for marketing strategies that can help in improving

quality as it “involves analysis of patient, analysis of hospital strengths/weaknesses and marketing strategies”.

There have been many recent changes which have affected marketing and quality as they move substantially away from the traditional medical care paradigms and toward a more contemporary health care paradigm and alternative medicine will certainly play a large role in the health care system (Rynne, 1999, p.13). For example, in the UK the internal healthcare market, competitive, privatisation has forced the public sector to commercial considerations such as quality (Erridge and McIlroy, 2002, p.54).

The value of marketing today includes a concept of educating patients, providers, payers and employers about the unique manner in which hospitals can legitimately maximize patients' encounters through a two-pronged approach that includes increasing patients compliance and matching an appropriate level of service with the correct diagnosis (Lieberman and Rotarius, 2001, p.28). This concept can help the hospitals to provide better quality of service through its customers. Also the 'five Ps of marketing' (product, price, place, promotion and partners) can contribute to some of the dimensions of quality (Bin Saeed, 1997, p.100). 'Product' represents the health services provided such as the treatment and social services. 'Price' concentrates on what customers are willing to pay for a service. 'Place' refers to the manner in which services are delivered. It involves issues of access such as geographic location, hours of operation and proximity of providers to one another. 'Promotion' refers to how the hospitals inform and educate the marketplace about its services. It includes advertising and other activities such as public relations (Bin Saeed, 1997, p.100). Finally 'partners', this is important because of the increased number of inter organisation relationships being formed in health care (Lieberman and Rotarius, 2001, pp.26, 27). Beckham (2001, pp.37-40) discussed many strategies of health care marketing that worked in the last 20 years which can affect the level of quality and realize some dimensions of quality such as effectiveness and efficiency. Strategies such as positioning, new services, customer relations and services excellence play a role in quality. Porter (2000, pp.72,78) suggested the top ten misconceptions physicians have about marketing, changing these concepts may contribute to improving their role, as physicians play an important role in achieving quality of health services. These misconceptions include: “marketing is just a disguised term for



advertising, quality sells, people need medicine-it does not have to be sold, marketing is waste of practice revenue, patient satisfaction does not have to be studied, if we serve patients well, they will remain loyal to our practice, marketing the practice is a matter for physicians only, advertising should feature physicians' credentials, patients will share your enthusiasm for the crackerjack specialists to whom you refer them and patients' dissatisfaction with the hospital experience is the hospital's problem". While Ford and Fottler (2000, p.18) present the top ten principles that the authors believe should be the guiding force for health care providers in both marketing and quality. These principles are: "services quality and value are always defined by the customer, participation of guests adds value and quality to their service experience, everyone must believe that the customer matters and act accordingly, find, hire, and train competent and caring employees, customers expect employees who are not only well-trained but also have good interpersonal skills, customers expect the services experience to be seamless, avoid making your customers wait for services, create the setting that customers expect, what gets measured gets managed and success is never final".

Market research is important in helping hospitals improve the quality for many reasons. Firstly, continuous cost increases have strongly encouraged competition within all segments of the health care field. Secondly, consolidation of providers into integrated delivery systems has continued. Finally, consumers have emerged as a major force in health care (Kazandjian and Sternberg, 1995, p.50).

Ovretveit (1992, p.134) encourages the idea of 'internal marketing' of quality, as there is a need to sell services quality to staff before trying to convince external customers. The idea of internal marketing of quality includes an understanding of the wants and needs of employees and describes employers' approaches because of the competitive labour market.

As is evident from previous discussions there were many elements to consider as important approaches in marketing such as patients, new services, customer relations, service excellence, communications, technology, physician capabilities and facilities of hospitals. At the same time these approaches is an importance approaches in quality (see concept and dimension of quality) and in TQM (see chapter 5). In general, the hospital's strategy decisions on the marketing side of services includes the service offered and the service quality. Services offered usually include clinical

and non-clinical services and are concerned with what, when, how and where services will be provided, in particular it is these variable elements that are important to achieve quality (Donald, 1984, p.20; Bin Saeed, 1993, p.82). Ovretveit (1998, p.160) is concerned with how the services are established in the mind of clients, purchases and referrers and what is distinctive about their response in terms of the benefits and the position of services in the market.

In KSA, the function of marketing is needed to improve the quality of health services such as: in determining the present and expected patients and in understanding the patients' requirements and expectations (Madkore, 1991, p.120; Macstrevic, 1978, p.253). This may affect the quality of the health plan, in the utilisation of fast developing methods of treatment, medicine, clinical-equipment. In government hospitals, marketing needs to determine the optimal resources and facilities which are needed to determine the size of the demand (Ireland, 1978, p.131) as some of these hospitals are not effective in using their resources. In addition, some hospitals fail to perform some of their marketing functions effectively, hence resulting in economic and social losses. The limited financial resources of government hospitals mean the necessity of efficiency the function of marketing and creation of new resources to support the activities and services of the hospital, and thus contribute to improving the quality of these services.

To improve the quality services from the marketing viewpoint there were seven methods that Saudia hospitals manager can use (Al Yafi, 2001, pp.127, 128):

- Educating customers how to use the service could lead to better services quality. Also making the hospital's policy clear could reduce customer disappointment.
- Manipulating customer expectations to avoid promising too much to the customer.
- Managing the physical facilities e.g. equipment and appearance of services personal, to give a good impression of services quality.
- Developing a quality culture within the services providers' organisation and establishing standards among personnel.
- Making sure the equipment and physical appearance fit the desired service quality level.
- Introducing an automated system, where it is possible to substitute for human effort, this can stabilize the service quality (i.e. using a computer system for registering).



-Following up customer satisfaction after services have been performed can help to discover any service process that may need improvement.

### **3.7 Conclusions**

The meaning of quality in health care is flexible in that they have different and numerous features, dimensions and measurements. There is no specific definition of quality in health care as it depends on what it is, for whom and for what purpose. The definition for the purpose of this thesis includes concepts developed from various definitions of quality in health services. The idea of quality in health is very old, but as a management system it began relatively recently in the twentieth century to develop from quality assessment to quality assurance, to total quality management. The dimensions of quality of care include effectiveness, efficiency, optimality, acceptability, safety of environment, legitimacy and equity, measurable and adaptiveness. The philosophy of quality management encompasses quality audit, quality control, quality assessment, quality assurance and total quality management. Finally, the relationship between quality and marketing is also explored. In the next chapter, the development of TQM in health services will be reviewed.

## **CHAPTER 4**

### **THE DEVELOPMENT OF TOTAL QUALITY MANAGEMENT IN** **HEALTH SERVICES**

#### **4.0 Introduction**

The philosophy of Total Quality Management (TQM) is based on the developments of the Scientific Management movement (Terziovski and Samson, 2000, p.144). This chapter discusses some of the essential issues related to TQM in health services such as the concept of TQM, the definition of TQM, some models of TQM and the differences and similarities between Traditional Quality and Total Quality Management.

#### **4.1 Concept of Total Quality Management (TQM)**

TQM is one of the methods that can be used to improve the performance and the management of the hospitals. The essential idea is comprehensiveness and integrity in order to achieve consumer satisfaction and the continuous improvement in every aspect of the hospital. 'Comprehensiveness' includes all clinical services, supporting services and managerial services. It includes all patients and all types of providers. It also includes different processes and activities in the hospitals. 'Integral' means co-operation between all departments, secondary systems and their programmes for improving the level of quality of all health services (clinical services, supporting services and managerial services). TQM is a "management philosophy based on a number of principles, such as customer focus, continuous improvement, process orientation, everybody's commitment, fast response, result orientation and learning from others" (Hellsten and Klefsjo, 2000, p.240). TQM is a system for never- ending improvement in health services (McCarthy and Hicks, 1992, p.22) and it is achieved through longterm strategies, which are applied using many principles and tools, such as consumers' satisfaction, "teamwork, leadership" (Aperatec, 1994, p.18), measuring systems, processes (Stein, 1994, p.5).

It is evident from the above, that TQM is not a mere process, technique, managerial style, or tool. It is all that together. It is quality in all the services available in the hospital. It is based on the concept of comprehensiveness and integration, through consolidation and implementation of the appropriate principles of TQM for continuous improvement in the quality of the health services.



## **4.2 Definition of Total Quality Management (TQM)**

It is more than the definition of TQM which represents a sort of difficulty when discussing the subject. It seems that there is no consensus, so far, as to what the term TQM precisely means (Wilkinson, Marchington, Goodman and Ackers, 1992, p.1). Even though TQM is relatively new its literature is full of definitions that often reflect author's concepts and their own comprehension of the term, however, may be noticed in the differences in the idioms used not the language. Below is a brief outline of those definitions:

The British Quality Association put forward three alternative definitions of TQM (Wilkinson *et al*, 1992, p.2): the first is interested in the 'soft qualitative characteristics, customers' satisfaction, culture of excellence, teamwork, training, involving all employees, competitive edge and performance barriers. The second focuses on the 'hard' production management view such as measurement, standards, using statistical tools to control the work and assess quality. The third is a 'mixture of hard and soft' this includes three elements: an obsession with quality, scientific orientation and teamwork. However, perhaps the managers focus on tools and measurements and not on the softer characteristics. Maybe categorizing TQM into hard and soft techniques is a more practical perspective. From the viewpoint of the proponents of TQM

The American Federal Office of Management and Budget Circular 1990 (Cited in Milakovich, 1990, p.209) defined TQM as " a total organizational approach for meeting customer needs and expectations that involves all managers and employees in using quantitative methods to continuously improve the organization's processes, products, and services". This definition includes a number of points such as: total approach, total management, the application of TQM and a coordinated and committed overall management philosophy. Morgan and Murgatroyd (1994, pp. 7-8) adopted the previous definition and believe that it is "a key point of departure to the full understanding of TQM because it stresses the aspects of organization or management wholeness to the approach", according to them, TQM achieves quality through all activities, all functions and all employees, and "to participate in the improvement process organizations need both, quality system and quality culture". Morgan and Murgatroyd (1994, p5) summarized a number of statements related to TQM definition such as "TQM involves everything, a total system of quality

improvement, achieving continuous performance improvement, TQM is a way of managing, so every job and process is carried out right, first time and every time”.

Ovretveit (2000) provided definitions of TQM. The first one views TQM as “ an organisation wide approach and philosophy, with a strategy for organization and personnel development and quality management and information structure”. This definition considers TQM as philosophy, strategy and focus on staff, management and structure. An example of this aspect is the Baldrige quality award framework. While the second way of considering TQM includes many elements such as quality team methods and framework for process improvement This includes two definitions the first one is “TQM a comprehensive strategy of organizational and attitude change, for enabling personnel to learn and use quality methods in order to reduce costs and meet the requirements of patients and other customers” . The second one is given by USA “TQM is a management method and is simultaneously two elements management philosophy and a management method” This definition emphasises empowering clinical and non-clinical personnel to be able to improve process and adopting the team customers.

From the point of view of the total approach, Ross, Clear, Dixon, Bartlett, Johnson, Wheldon and Hatcher (1996, pp. 40, 41) and Flood defined TQM (1993, p.47) in accordance with its three components “total, quality and management”. This definition explains the term ‘quality’ “as “meeting customers, requirements, formal and informal, at lowest cost, first time and every time”; ‘total quality’ as meaning quality that contains all employees, at all positions and across all “functions management in the hospital as the value of management responsibility that is projected into the meaning of quality”. While Ovretveit (2000, p.75) defined quality related to TQM as including “patients quality, professional quality and management quality”.

A number of authors defined TQM as concentrating on consumers, their needs, requirements and expectations. Oakland (1989, p.20), “TQM is a way of managing to improve the effectiveness, flexibility and competitiveness of the business as a whole, meeting customer requirements both external and internal to the organization”. While many definitions concentrated on the process. TQM can be defined in accordance with the Japanese concept “Kaizen” which means “continuous search for opportunities for all processes to get better” (Berwick, 1989, p. 54). There are many



definitions of TQM, which place more emphasis more on the output of care, TQM is the “opportunity to achieve better outcomes with fewer resources” (Counte, Glandon and Hill, 1995, p.81). Jablonski (1991, p.4) defined TQM as “a co-operative form of doing business that relies on the talents and capabilities of both labour and management to continually improve quality and productivity using teams”. This definition is supported by the three pillars of participation management, continuous process improvements and the use of teams.

A number of TQM definitions concentrate on the culture of the organization. According to Cuylenberg (1990, p.33) TQM forms an integral part of the organizational culture and “TQM must be accepted as a natural way of working by every employee. In such a culture every employee cannot help but be involved..., this would involve an awareness of hundreds of business processes which make any company works”. Owner, Niederdorf and Switzerland (2002, p.69) agree with this definition as they believe that TQM needs to do the “redefinition of the organisational culture the mean applying TQM will be successfully only if it is consistently and systematically applied the practical context point by point”.

Many definitions concentrated on the people. Lemmermeyr (1991, p.180) sees people as a central to TQM. Quality performance helps minimize, or completely eliminate, unnecessary costs. People should take quality as an inevitable issue that must be present in all aspects of the business and not a time limit process. Preventing mistakes and shortcomings is possible when quality is looked at as a philosophy that promotes human relations and processes. As far as TQM is a “total” approach, Lemmermeyr believes that all company employees need to be encouraged to participate in achieving the strategic objectives.

Crosby defined TQM as a “systematic way of guaranteeing that organised activities happen the way they are planned. It is a management discipline concerned with preventing problems occurring by creating the attitudes and controls that make prevention possible” (Schmele and Foss, 1989, p.31). The above definition considers TQM as a methodical method or technique that contributes to the significance of activities, planning and prevention of problems. Also it is interested in using many methods and tools as attitudes and controls.

Many authors referred to the statistical approach and scientific principles and methods when defining TQM. According to Bin Saeed (1997, p.37) there are three methods; the first, for example, has the tools and principles to eliminate unnecessary activities, which don't add any value to the process and help reduce effort, time and cost. The second is all those methods and principles driven from theories about human behaviour. The third is related to statistical tools that control the process and determine divisions. Some of these definitions are:

Stein (1994, p.1) defined TQM as "a management philosophy and structure designed to improve the profitability of companies through the practice of continuously improving all facets of each functional area including the management process". He believes that a TQM definition as an umbrella term must include: The application of statistical methodologies, employees' involvements as well as cross-functional management teams are used to manage the implementation of improvement process and to focus on areas within the company, which need improvement and focusing mechanisms are designed to continuously improve the quality of products and activities while reducing costs. The above definition focuses on the management and the practical sides through interest in some essential elements.

TQM is a relatively recent term in the health sector; it depends on the concepts and principles that were developed in the industrial sector by the pioneers of TQM.

In health care, the Department of Health in the UK defined TQM as: "Total Quality Management is a corporate management approach which recognises that the customer needs, and business goals are inseparable" NHS Management Executive (1993, p.10). NHS Management Executive (1993, 11) defines TQM as a strategy that maximizes the efficiency and effectiveness of an organization, which may be reached through creative applications and unconventional implementation. Ideally, the TQM environment features: customer oriented, well-trained and efficient human resources, continuous improvement and change is subject to scientific methods.

JACHO uses the term CQI which he defines as an organizational framework within which the health institutions and their employees are committed to monitoring and evaluating all the activities in these institutions (input, process, output) to continuously improve these activities (Rakish *et al*, 1992, p. 430). This definition highlights the importance of total approach, continuous improvement, commitment, process and evaluation.



The Health Development Council in Makkah, Saudi Arabia (2001, p.64) defined TQM as “a broad management philosophy, espousing quality and leadership commitment, energy and rational for implementation of the process of continuous improvement of the quality within the organization – wide quality management strategy”. From this definition, the researcher can clearly identify two issues: philosophical and application aspects. It also reveals number of elements such as total approach, management strategy, leadership commitment, process and continuous improvement.

Shortell, Levin and O’Brien (1995, p.151) defined TQM as “an ongoing effort to provide care that meet or exceeds customer expectations”. Other definitions of TQM include “a promising approach for increasing value in terms of maintaining or improving the quality of care while containing costs” (Shortell *et al*, 1995, p.5). This definition presents three elements that include considering TQM as a method of continuous improvement to different activities, considering the patients of health care as the aim of these improvements in health care, and the significance of cost.

Mansour and Hassan (1994, p. 214), Saudi Arabia, defined TQM in the health sector as “the concept whereby the systematic management of data is applied to monitor and evaluates processes to improve the outcome to the desired standards of quality”. This definition mainly focuses on the process and outcome with limited extent to controlling and evaluating and excluded improving process. However, the definition links between the standard of quality and the available facilities of the hospital. In Benjami, Mandil and Seaman (1998, p.448) many elements are considered in defining TQM in health care in Bahrain such as: improvement of services, outcomes and products; importance of data collection; focus on customer satisfaction, and a decentralized, team approach to improvement that involves front line staff.

The previous review, clearly, reflects the difficulty of having a uniform definition for TQM that is attributed to the dissimilarity of the prevailing definitions, for instance:

Authors tend to use different terms, idioms and expressions, such as philosophy, theory, implementation framework or simply tools and techniques (McAdam, 2000, p.315), also such as systems and methods.

Some definitions focus on the application of TQM while the others favour the theoretical side. Some definitions adopt the “Total” concept, however, others consider the elements and technique as tools that help achieve TQM objectives.

In spite of the differences in their views to TQM elements, most definitions have commonly focused on:

- Leadership commitment and top management
- Quality culture
- Statistical analysis and measurement
- Focusing on customers’ satisfaction (internal and external customers)
- Participation of all employees in the function of continuous quality
- Improvement
- Focusing on continuous improvement the performance of all process, products and activities
- Participation of management with the employees
- Using many methods and tools in implementing principles to realise TQM
- Some of the definitions added elements such as the financial aspect
- Planning, prevention, competitive and people

For the purpose of the dissertation, the term TQM will be used to mean *a comprehensive and integral managerial system that is committed to generating a working environment in hospitals, which achieves continuous improvement for the abilities and the skills of all employees and working systems. This improvement aims to be a continuous improvement in all activities that lead to improved health services through the application all elements of TQM that are appropriate to the hospital.*

Properties of the above definition are in the following Table:



Table 4.1

**Properties of Total Quality Management definition**

<b>Managerial system</b>	<b>Systemic way and method for performing the work</b>
<b>Comprehensive system</b>	<b>Includes all employees, functions, processes and activities</b>
<b>Integral system</b>	<b>Co-operation and co-ordination among all employees and activities</b>
<b>Work environment</b>	<b>All the conditions, circumstances and influences that have the ability to affect the organisational process</b>
<b>Continuous improvement</b>	<b>Acceptance of small and important achievements as a step in the right and long direction of development</b>
<b>Abilities</b>	<b>In terms of capacity and tendency</b>
<b>Skills</b>	<b>The practical ability to carry out the correct procedure</b>
<b>All employees</b>	<b>Including physicians, nurses, technical staff, administrative staff and any others in any function in hospitals</b>
<b>Working systems</b>	<b>The structure and process of performance of the correct procedure in an organised manner</b>
<b>Activities</b>	<b>Functions including medical, support, and managerial function as well as other functions in hospitals</b>
<b>Health services</b>	<b>All elements of care for patients, including clinical support and managerial services</b>
<b>TQM elements</b>	<b>Including leadership commitment, customer satisfaction, focus on process, culture environment, human resources management, containing the costs and using the TQM tools. Considering a market orientation in customer satisfaction. Market orientation includes “three behavioural elements (customer orientation, competitor orientation and interventional coordination) and two decision criteria (long-term focus and profitability)”. This means creating additional benefits for customers, reducing total “acquisition and use costs and examined many alternatives sources of in sustainable competitive advantage” (Narver and Salter, 1990, p.21). Customer orientation “is the sufficient understanding of one’s target buyers to be able to create superior value for them continuously” (Narver and Salter, 1990, p.21). And needs to “understand a buyer’s entire value chain” (Day and Wensley, 1988, p.2)... over time subject to internal and market dynamics” (Narver and Salter, 1990, p.21).</b>
<b>Appropriate to</b>	<b>The hospital is not under compulsion to apply all TQM principles and tools, but</b>

the hospital	rather it can select a suitable and distinguished process of its application
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In general, this definition includes the main elements included in the above definitions and the concept of TQM. It is also appropriate for the objectives of research that aims to apply TQM in hospitals.

### 4.3 Models of Total Quality Management

There are many models for the application and development of the system of quality management. For example, the model that developed from the pioneers of TQM and the models that benefited from the first one, in addition to some improvements and amendments that were meant to enrich and develop these basic contributions by means of basic pillars and important elements such as Victor-C and Haber model. As well as the models that contain a modern vision and integrated models for the implementation, such as "The TQM Wheel Model", "The Baldrige Award Model" and " The European Quality Award Model" TQM. Zain-Al Deen (1996, pp.53, 54).

#### 4.1.1 Models of TQM from the Pioneer’s Perspective

The roots of TQM can be traced back to the efforts of quality pioneers in the industrial sector, especially after the Second World War in Japan, then in the USA and Europe (Bendell, 1992, pp.2, 3). After that it was extended to the services sector. All pioneers concentrated on reaching a comprehensive vision for quality that covered the management responsible for achieving quality, as well as customer satisfaction and quality improvement. They aimed to improve quality, but the methods which were used by them were different. The most famous of TQM pioneers are the American pioneers such as Deming, Joseph M. Juran, Phillip B. Crosby, and Japanese pioneers such as Koaru Ishikawa and Genichi Taguchi.

**W. E. Deming:** is considered the “father” of TQM. (Zain-Al Deen, 1996, p.26). He was a statistician whose philosophy about TQM found great acceptance in Japan in 1950. In appreciation of his efforts, Japan established the Deming prize for quality in 1951 (Badri, 1992, p. 12). Deming refused to define TQM when he was asked by Journal of Organizational Change Management (Boje, 1993, p.4), and he indicated that TQM had many meanings for researchers. His best-known contributions are: The



“control chart”, the “Plan, DO, Check (he later changed it to Learn) and Act [PDCA] cycle”, which was originally Shewhart’s idea (Abu-Al Wahed, 1997, p.124). and fourteen points for quality management. These points include:

- Determining the organisation’s aims and philosophy with greater constancy of purpose towards improving the products or services, to adopt a new philosophy by all employees, and to constantly improve the system of production and services.
- Ceasing dependence on mass inspection, with elimination of numerical quotas and changing the purchasing philosophy by putting an end to the practice of awarding business on price tag alone, the application of a vigorous programme of training, education and self- improvement.
- Improving the behavioural aspects by driving out fear, creating trust and innovation, breaking down barriers between staff by supporting communication and team work, eliminating slogans, exhortations and targets for the work force, and removing barriers to pride of workmanship. In the end it takes action to accomplish the transformation (Caroselli, 1992, p. 99; Bulbul, 1994, p. 35; Badri, 1994, p.333).

**Philip Crosby:** viewed TQM as the way of changing “corporate culture and attitudes” (McLaughlin and Kaluzny, 1994, p.16). He focused on output as he presented “four absolutes of quality”, which include (Borden, Burke, Hoskins and Yan, 1994, p. 8):

Crosby defined quality as “conformance to requirements” and “doing the right thing the first time”. The system of quality is “prevention”. The performance standard of quality is “zero defects”. The measure of quality is “price of nonconformity”.

Like Deming, Crosby provided his own programme that included fourteen points to develop the employees’ skills and their commitment and support to the system. These include “management commitment, quality improvement teams, quality measurement, cost of quality evaluation, quality awareness, corrective action, committee for zero defect programme, supervisor training, zero defect day, goal setting, the removal of the causes of error, recognition of success, quality councils and continuously improving the quality again and forever” (McLaughlin and Kaluzny, 1994, p.17; Madkour, 1995, p.135).

**Joseph M Juran:** defended quality as “fitness of use” (Bendell, 1992, p12). He emphasised all managerial quality activities for the top, middle and executive levels of

management, and suggested the following trilogy, “quality planning, quality control, and quality improvement” (McLaughlin and Kaluzny, 1994, p16). He provided his programme with eight steps, (Al Gahttain, 1993, p.19), emphasising the importance of quality, training, information systems, knowledge about cost, defects and errors, good and continuous relationships between employee and management, commitment and using the quality circle system (Badri, 1994, p.334).

**Koran Ishikawa:** is considered the father of the “quality circle” and the inventor of the “Ishikawa or fish-bone diagram” (Bin Saeed, 1997, pp.170, 173). He emphasised the need for continuous improvement and the use of TQM tools and techniques for all employees, especially using statistical methods for quality control and solving problems. He suggested seven tools including “Pareto charts, cause and effect diagrams, stratification, check sheets, histograms, scatter diagrams and Shewhart’s control charts and graphs” (Bendell, 1992, p.17-19). He also offered an expanded definition for quality (Bin Saeed, 1997, p. 171), and was concerned about “process, customer, supplier, communication, education, training and quality audits” (McLaughlin and Kaluzny, 1994, p.18).

**Genichi Taguchi:** like Ishikawa, emphasised “statistical techniques development” in solving problems. He focused on what is called “robust” “forgiving” and assesses the quality from “customers” and “process” perspective (McLaughlin and Kaluzny, 1994, p.18). He preferred to use “quality loss rather than quality”, provided two meanings of quality “loss function and design characteristics” (Bin Saeed, 1997, p.175) and divided quality control into three steps, “system design, parameter design and tolerance design” (Bendell, 1992, pp.21, 22).

There are other pioneers who developed other models such as Feigenbaum who was the first one who contributed to the total quality control and interested in using quality cost and customer satisfaction (Abud-Al Mohassen, 1996, p.16). Tom Peters concentrated his efforts on “customer, creation, employees, leadership and systems”. He has 45 prescriptions and 12 traits of quality revolution (Bendell, 1992, p.34

**4.1.2 Other Models:** the following is an illustration of some of the models related to the second and third approach.

**Victor-C:** It includes: clarifying the vision, the contribution of all employees in the process of continuous improvement and establishing a system for continuous



improvement, continuous education and training, the exact determination of the responsibilities of the employees and managers, establishing commitment and enforcing support, establishing a fair system for evaluation and rewarding and ensuring the achievement of full satisfaction of the customer (Zain-Al Deen, 1996, pp.55-57).

**The Hamper Model:** This model concentrates on the following factors: Leadership, planning and preparation, education and training, forming the work team, quality designing and continuous improvement (Zain-Al Deen, 1996, pp.75-79).

**The Baldrige Award:** It includes seven elements that are: leadership, information and analysis, strategic quality management, human resources utilisation, quality assurance of products and services, quality results and customer satisfaction (Matee, 1995, p.79).

**The European Quality Award:** It includes nine basic elements that have been classified into two groups. The first group represents the factors that can assist in the implementation of TQM; these are human resources management, strategies and policies, resources and operations. The second group comprises the expected results of the system, and these include the satisfaction of the employees and customers, the effect on the society and the results of business (Zain-Al Deen, 1996, pp.71, 72).

From the above, it is clear that TQM is an American invention rather than a Japanese one. The American pioneers had implemented TQM in Japan. One of these pioneers is Deming, who focused on the tools, techniques, and training and on what he called Management Philosophy. Crosby concentrated on the policy of working without errors and on the conditions related to quality management and basic factors of improvement. Juran was focusing on the customer, managerial activities and leadership. A number of Japanese pioneers had participated in the progress of TQM in Japan, such as Ishikawa who focused on tools and techniques of improving quality, while Taguchi focused on statistical techniques in problem solving. Perhaps there were many difference between models such as between Deming model and Crosby model as Deming believe that there was no need to measure the quality cost, as there were many costs which were unviaible to measure, the aim of a quality programme is customer satisfaction focussing on continuous improvement, while Crosby was interested in the cost of quality and zero defects. In general, there are many factors that were the pivot of the focus of quality models, such as: improving quality is a

continuous process, customer satisfaction, top management commitment and concentration on improving the performance, focus on the process, systems, procedures and the use of the methods, techniques and tools for improvement. Also, quality contributes to competitiveness and reducing the costs in the long run, quality takes time in its implementation, quality management is important for all employees so it must involve all employees in all activities of quality improvement and focus on continuous training and education for employees.

In the health sector the hospitals profited from the quality pioneers efforts in improving its services. The National Demonstration Project in Quality Improvement in Health Care Services (1990) provided ten lessons that succeed in industry and could be applied in health services, namely: “quality improvement tools can work in health care, cross-functional teams are valuable in improving health care processes, data useful for quality improvement in health care, quality improvement methods are fun to use, costs of poor quality are high and savings are within reach, involving doctors is difficult but important , training needs to arise early, non-clinical processes draw early attention, health care organisations may need a broader definition of quality, in health care, as in industry, the fate of quality improvement is first of all in the hands of leaders”(McLaughlin and Kaluzny, 1994, p.34).

TQM can be considered as an administrative method of managing organisations in general and has proved its effectiveness in improving the health services provided, whereas many hospitals have realised improvement in their services due to implementing that method. This does not mean that TQM is the only and the optimal solution for improving the quality of health services, as there are many criticisms to TQM. There are a number of alternatives to TQM, such as Re-engineering Six Sigma. However, these methods have been applied to the health sector recently relatively in the developing countries like the KSA and the final outcome of the extent of their success and the problems accompanying their implementation are not yet evident.

Re-engineering can be defined as “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service, and speed” (Hammer and



Champy, 1993, p.11). According to Krieter (1996, p. 71) this definition includes “fundamental, radical, dramatic and process”. The definition indicates that re-engineering involves many changes over a short period of time, radical redesign of organisation, looking at the whole picture and it is not just a quick-fix solution but it also defines the problems, redesigning the process.

According to Jaffe and Scott (1998, p.151) re-engineering emerged from two intellectual parents: ‘socio-technical systems change and total quality management’. Socio-technical systems change posited that organisational change had to affect both the people and the technical elements of the organisation (Pasmore and Sherwood, 1978, p.20). Re-engineering also can be used if the hospital faces the limitations of continuous improvement and total quality efforts to radically transform workplaces. According to Krieter (1996, p. 72) there were many similarities between TQM and re-engineering such as: both are interested in performance today for improving the organisation, needs support from all staff especially top management, needs to be measurable, interested in customers and process. Allender (1994, p.41) believed that TQM is ‘border scope’ than re-engineering, although he provided some differences between them such as “ re-engineering’ focussing on improving process does not qualify the new management trend as a substitute for TQM, TQM flexibility allows for adopting new tools and new elements to the philosophy”.

There is a growing interest in the application of re-engineering techniques in hospitals. It initially developed in the USA and is commonly found in many developed countries such as Australia and the UK (Buchanan, 1997, p.52). There were some benefits from applying re-engineers such as: work becomes multiskilled, activity is carried out in teams, structures become flat, executives lead instead of directing (Hammer and Champy, 1993, p.50). Applying re-engineering needs to change the hospital culture, change people’s behaviour and change the way leaders and employees work. Re-engineering faces many challenges such as: “achieving critical mass. It is not easy to get people to be different; remaining open to discovery and learning. Re-engineering is a major risk, moving forward into uncertainty; Re-engineering is the enemy of hierarchy. Change is the enemy of the status quo, the stable organization, the hierarchy, and the political organization, and overcoming resistance. Organizations and people are designed to resist change, not to embrace it. Change is more difficult to achieve than many leaders would like to believe. They

want to carry out change quickly and easily, which leads them to ignore the human” (Jaffe and Scott, 1998, pp.255-257).

Six Sigma programmes have been established as a means to reduce defects and to improve organisational performance. It used problem-solving techniques such as total quality management tools (Andaleep, 2000, p.101). Six Sigma is considered as a quality improvement system; it began in manufacturing operations and claims to have added the ability to achieve major change through organisations (Harrold, 1999), and statistical analysis to accomplish an integrated approach.

Six Sigma can be defined as “The structures application of tools and techniques of quality management applied on a project basis to achieve strategic business results. It serves as an overarching umbrella for other quality tools and techniques bringing their use together under one defining philosophy” (Miller, 2001, p. 94). Generally there are five basic steps involved in the process:

- Definition of the process to be improved
- Measurement in order to obtain performance baseline
- Analysis of data aimed at identifying where errors are occurring
- Improvement in the process
- Control to ensure non recurrence

Miller (2001, pp. 92-94) argues that Six Sigma is more likely to be successful in comparison to other quality programmes because Six Sigma allows for errors (albeit very small), and hence it is perceived as being more realistic. However, Studt (2002, pp.21-23) points out that the implementation of any Six Sigma process is a complex system. It has a multitude of requirements that must be understood and accepted by all those concerned. Some issues of consideration raised by Studt (2002, pp.21-23) include top down management support, the need of ‘champions’ or ‘black belts’ Six Sigma experts with strong statistical skills, formal training of personnel and the understanding that implementation may take time (several months) before results are evident. The leadership must be visible (Narasimhan and White, 2001 p. 3).



4.4 Comparison of Total Quality Management with Traditional Quality

TQM does not dismiss traditional quality systems such as quality assessment and quality assurance systems. It aims to benefit from these approaches and expands and develops them to the total activity of the organisation. Table 4.2 explains some differences and similarities between traditional quality and TQM.

Table 4.2  
Differences and Similarities between Traditional Quality and  
Total Quality Management

Subject	Traditional Quality	Total Quality Management
Definition of quality	Services and organisation oriented are first	Customers are oriented first
Definition of customer	External clients who purchase services (only patients). Communicate with them when there are complaints or problem based	Customers are external and internal persons receiving output of work processes. All users and providers. Ongoing and solicited communication which them to know their needs and expectations
Definition of processes	Process directly related to clinical services to patients	All processes, all clinical and non-clinical processes
Solving problems	Responsibility for those in authority, avoid searching the underlying problems. Using reactive method and inspection system	Responsibility for everyone in the organisation. Search and find the problems for opportunities of CQI. Using proactive methods and preventions systems
Errors result from	Special causes (employees making mistakes, so the managers who manage them use finger pointing, blame and use fear)	Common causes (ineffective systems, management practices, so managers take responsibility
Mistakes	Acceptance of some mistakes, rework and waste	Avoid mistakes, rework and waste, emphasis on doing it right the first time, every time and all the time
Planning	Short-term	Long-term and strategic planning
Improving	When there are problems or needs	Continuous improvement
Emphasis	Error detection	Error prevention
Goal orientation	Short-term results	Balancing short- and long-term processes and results
Measuring	Conformance to standards, standards being defined by professionals who provide services and include specific targets for defects	Aims to achieve objective evaluation that is based on facts and standards. Acceptance of modernisation, which is defined from the consumer's perspective. Zero defects, and a never-ending improvement, without being limited to preceding norms
Methods	Statistical methods, quality indicators control, diagrammatic approach	Development and improvement methods
Responsibility for quality	QC and QA inspectors or specialists	Everyone in the organisation
Achievement of quality	Quality control/quality assurance inspectors or specialists, quality committees which include physician members	Quality based on participation and co-operation of all employees, quality committee that includes medical and managerial members

Authority	Centralisation and decision-making depending on knowledge of top management	Delegation of authority and decision making depending on scientific fact and comprehensive participation
Services design	Determined from specialisation department, according to experts the employees	Determined from teamwork depending on facts gathered from consumers
Managers	Know more than the employees, so the employed just listen and execute	Employees know more than managers about their jobs, so they participate in improving the system
Productivity and quality	Incompatible goals	Improving the quality leads to productivity
Organisation structure	Hierarchical, bureaucratic, static, departments isolated, vertical communication	Flat, integrated, flexible, break down barriers, horizontal communication

Adapted from: Borden Burke, Hoskins and Yan, 1994, *Regional Quality Management Program*, P.7; Shihatta, 1995 b, "Total Quality Management: Concept and Success Elements," A Symposium Presented to *The First Saudi Symposium on Hospitals' Management and The Role of the Private Sector*, p.58; Bin Saeed, 1997, *Total Quality Management: Applications in Health Sector*, p. 108; Robins, 1992, Redefining and Expanding Quality Assurance," *Clinical in Laboratory Medicine*, p. 810; Al Khalaf, 1997, "The Trinity of Distinction: Improving Quality, Planning Cost and Increasing Productivity," *Public Administration*, p. 124.

The above illustrates the difference between the traditional quality approach and TQM. TQM is more appropriate for hospitals, as TQM provides an approach that is more comprehensive and more advanced in comparison to the traditional approach of quality management. It presents the concept of integration and co-ordination of all health services provided, and it is focused on all the employees in achieving quality. TQM emphasises the broad concepts in many of the above points, such as the definition of quality, customer and process. In addition, TQM concentrates on a number of important principles, such as continuous improvement of the process, prevention of problems and the role of the management in the achievement of quality.

#### 4.5 Conclusion

The basic ideas in the development of the concept of TQM are comprehensiveness, integrity and co-operation in applying TQM principles and tools. There are many definitions of TQM. Also there are many models of TQM. such as the models of the American pioneers, as well as the Japanese pioneers, in addition to other models such as Victor-C Model. Finally a comparison of traditional quality with TQM was undertaken to explain the dimensions of each system. The fifth chapter will also review the application of TQM in health services.



## **CHAPTER 5**

### **ELEMENTS AND APPLICATION TOTAL QUALITY MANAGEMENT IN HEALTH SERVICES**

#### **5.0 Introduction**

The implementation of TQM in the health services aims to improve the quality of health care services, to make these services meet and exceed customer expectations and to ensure appropriate utilisation of the available resources for providing the best possible outcomes of care; both quantitatively and qualitatively. Before applying TQM to the health services, it is important that the use of TQM in health services and principles of TQM elements are understood, as this forms the basis of implementation. These elements, how they are applied in hospitals especially in public hospitals as it is the field of application this study, what are the critiques of TQM regarding theory and practice, as well as in public and private sectors and the problems which may be found in its application are discussed in this chapter.

#### **5.1 Usages of TQM in Health Services**

Health services are considered among the most important services in the society. There is a degree of risk in the provision of clinical care in that a small mistake may lead to death or disability. Today, quality is not just a professional or clinical issue. At present health organizations suffer from many changes and challenges as well:

- “Escalating costs” of health care (Ernts, 1994, p. 1; Bin Saeed, 1999, p. 59), such as those of labour and equipment.
- Reliance on the fast growing and changing medical science and medical technology as well as dependence on accurate specialisation among clinical practitioners (Graham, 1990 c, p. 4).
- Increasing control and pressure by financing, transfer, licensing and accreditation bodies that aim to reduce the cost and improve the quality of the service (Sahney and Warden, 1995, p.14).
- Increase in population and their demands for health services. In public health services demand is always greater than supply and resources (Ovretveit, 1992 p.1). Increasing consumer expectations, awareness, and interest in quality in health services (Graham, 1990 c, p. 4), as well as rising standards of living and

education (Lim and Tang, 2000, p.103) and spreading of the economy health care organizations and the availability of correct information.

- Raising the level of interest in meeting the needs and expectations of internal and external customers in health services (Kim and Johnson, 1994, p. 51).
- Increase in the number of medical mistakes, and an increase in the numbers of legal claims (Bin Saeed, 1997, p. 25).
- “Competitive pressures” (Lim and Tang, 2000, p.103). According to Ernts (1994, p. 1) there was “Intense competition” in some countries e.g. the USA between health care organisations leading to an improvement in their services (Ernts, 1994, p. 1). Thompson (1998, p.371) believe that there was “little benefit of competition” for quality in health care and, on the other hand, there was no evidence that it had “negative effects on quality”.
- Increasing demands for achieving the optimal and efficient usage of the available resources.
- Inability of traditional quality techniques to improve the quality in health services (Dimant, 1991, p.207).
- More attention has been paid to quality issues in health care sector, which is attributed to the influence of the government, customers, other stakeholder and hospital management. In the past few years rather than mainly funding, the government as the main health care provider focused on issues such as organization, quality and management in hospitals. In order to raise the standards and improve the quality, governments have made a number of attempts in this area. Rather than focusing on the technical aspect of the health care service, the management pays more attention to care systems in general and improving the government’s legislation related to quality in health services (Kunst and Lemmink, 2000, p.1123).

In a developing country like the KSA, health care organisations are in greater need of quality in their services in order to be able to face the challenges listed above and other local and international challenges (see chapter 2). TQM, with its many benefits may pave the way for improving quality in these services.

Health organisations need to develop an effective and efficient system for clinical and managerial services throughout the whole organisation (Koch, 1991, p.30). The



system should ensure provision of a suitable level of quality for patients and other consumers, continuous improvement in the level of quality in performance and services, optimal usage of the resources and continuous, explicit and objective standards for evaluating the services and finding solutions to the problems. The World Health Organisation states that “ by the year 2000, there should be structures and processes in all Member States to ensure continuous improvement in the quality of health care and appropriate development and use of health technologies” (Gotherstrom, Hamrin and Carstensen, 1994, p.77).

The National Demonstration Project on Quality Improvement in Health Care includes experts from 21 health care organisations and states that TQM techniques can work in health care (Borden *et al*, 1994, p.8). According to Labovitz (1991, p.15), TQM has led to positive effects in hospitals, as it can achieve many aims in health care in both private and public sectors (Al Gahttain ,1993, pp.8-9). According to Yasin and Alavi (1999, pp.18, 23), many hospitals in developed countries have adopted TQM. For example, in 1993 40% of hospitals in USA attempted to initiate some sort of TQM efforts. The results of his study in hospitals recommended that hospitals need to invest in TQM as it leads to a “competitive advantage in the marketplace”.

A number of researchers suggest that implementing TQM could help solving some of the health care shortcomings (Lim and Tang, 2000, p.104). Various health care organizations have achieved satisfactory benefits by implementing TQM such as improving quality, efficiency, productivity, customer satisfaction and business environment (Milakovich, 1991, p.195; Al Ahmady, 2000, p. 418). In general, there are varieties of usages for TQM in health care sector. Some of these are:

The continuous process improvement focuses on the whole process (Sahney and Warden, 1995, 15) and helps to simplify work procedures by making shortcuts and introducing improvements. It also helps to avoid waste, repetition and unjustifiable variance in the method of the work (Gerber, 1992, p.28). For instance, in West Paces Ferry Hospital in Atlanta hospital they managed to reduce Caesarean operations from 22% yearly to 10% by determination and improving the work methods. Central Dobage Hospital has saved US\$ 73,000 yearly by preventing the waste in operations and due to the high performance of the staff (Gerber, 1992, p.28). One of the most

important factors in the process is preventing the unjustifiable variance 'random variation' in the clinical process management system. There were two kind of variations, "assignable variation, the aim is to track the outlier points to their root cause then eliminate them, and the second is the random variations in the physical attribute of the process and its output, this type need to design a new process then scientifically compare its performance against the old approach" (James, 1994, p.24).

TQM can be used to optimise the available facilities and resources in hospitals. TQM ensures doing the right thing the first time, so it contributes to reducing mistakes, work repetition, unnecessary care and the waste of time and effort (Taylor and Cchra, 1992, p.11). Also TQM facilitates in "continuous improvement and prevention of errors, in addition to creating new and better processes" (Taylor and Cchra, 1992, p.11), and "clinical outcomes" (Labovitz, 1991, p.15) and "organisational activities that are designed to continually improve performance, efficiency and productivity levels" (Dimant, 1991, p.207).

TQM can be used as a tool and technique in collecting data, analysing data, solving problems and taking decisions (see point 5.7).

The TQM system is used in USA hospitals to analyse competition, value and market share (Huq, 1996, p.61). For example in benchmarking. It "is the continuous process of measuring products, services and practices against the toughest competitors or those companies recognized as industry leaders", four kinds of benchmarking: "internal benchmarking, competitive benchmarking, functional and generic benchmarking" (Morgan and Murgatroyd, 1994, p.28). Also it can be used for the implementation of relationship marketing as an approach to gain customer loyalty. Consumer loyalty calls for the perfect supplier; performance and marketers therefore realise that the organisation needs to deliver on its promises. As a solution, it is suggested that the tools and techniques of TQM may help with the strategic implementation of relationship marketing (Morris, Barnes and Lynch, 1999, p.569).

TQM can be used to guarantee health services, it powerful way of demonstrating the commitment of hospital to customer satisfaction (Morgan and Murgatroyd, 1994, p.29).

TQM can be used to understand the needs, wants and expectations of internal and external customers, it helps to meet these requirements and helps to bridge the gap between the expectations of customers and what the hospital is capable of delivering (Al Ahmady, 2000, p.416). However, for example, there are difference between the



USA and Europe. TQM in USA hospitals is probably more patient-oriented and effective than in European hospitals (Kunst and Lemmink, 2000, p.1130).

TQM can be used to add value and improvement to the health services such as in: preparing time, waiting time, unnecessary process steps, communications (Morgan and Murgatroyd, 1994, pp.30, 31).

TQM can be used to re-engineer human resources (Harriger, 1993, p.17), human resources managers should consider consolidating TQM into their plans, which contribute towards the success of the hospital. The TQM approach requires the participation of all the employees within the organization; TQM contributes to the increase in employee morale, through empowering employees, by delegating authority, through participation in decision making and problem solving, teamwork, encouraging creativity, training and education. TQM improves inter-professional co-operation (Ovretveit, 1992, p.8) and co-ordination between professional and managerial employees.

To help the management in the evaluation of the quality of services, it contributes to setting, monitoring and developing standards and indicators; evaluation will be explicit and objective and includes all processes and outcomes that lead to proposing the correct procedures (Bin Saeed, 1997, p.28).

TQM can work with Just in time “in the elimination of waste, which is defined as anything other than minimum amount of equipment, materials, parts, space and workers’ time that are absolutely essential to add value to the services” (Morgan and Murgatroyd, 1994, p.32).

In spite of the number of the usages ensuing from TQM, this chapter will include many applications of TQM. Its implementation is not an easy job. This is particularly true in the Arab Countries, where there are many obstacles that hinder or limit its successful implementation.

## **5.2 Elements of TQM in Health Services**

Many elements of TQM in the health sector derive their roots from the contributions of TQM pioneers, and from the writings of authors and researchers who paved the way for the establishment of the principles of TQM.

Jablonski (1991, p.25) demonstrated six principles for TQM. These are “customer focus, prevention versus inspection, fact-based decision making, focus on the process as well as the results, mobilising expertise of the work force and feedback”.

The Australian Best Practice Demonstration Programme brochure (1994) presented twelve principles that illustrate development of TQM from the industrial sector to the health care sector. These are: “commitment and leadership, shared vision and strategic plan, development of performance measurement systems and benchmarking, development of external relationships, focus on customers, commitment to continuous improvement and learning, pursuit of innovation in technology, processes and products, flatter organisational structures, closer relationships with suppliers, innovative human resource management, co-operative industrial relations environment and integration of environmental management practices” (Stuart, 1994, p.48). The previous principles are concerned with continuous improvement in all activities, human resource management and interaction with the environment. They added many basic concepts such as leadership, commitment, invitations, environment and technology.

JCAHO provided seven elements for the implementation of TQM in health care organisations, they are: “commitment for leadership, defined quality, focus on customers, include all employees, improving work process, prevention, using methods and statistical tools for improvement and solving problems” (Sberman and Malkmus, 1994, p.37).

Shortell *et al* (1995, p.5) presented the dimensions for TQM in health care that include “cultural, technical, strategic and structural dimensions”. The cultural dimension means opinions, values, standards and compartment of the organisation. The technical dimension involves training the employees in TQM “tools, decision-making processes, information system and data analysis”. The strategic dimension is “focused on key strategic priorities and on the organisation’s overall strategic plan”. Finally, the structural dimension refers to the “specific organisational entities”.

As evidenced from above, the main elements for implementing TQM in health organisations were driven by comprehensive and integral perspectives. These perspectives include: *Leadership commitment, customer satisfaction, focus on process, culture environment, human resources management, containing the quality costs and using the TQM tools.*



### 5.2.1 Leadership Commitment

The National Demonstration Project on Quality Improvement in Health Care states, “in health care, as in industry, the fate of quality improvement is first of all in hands of leaders” (King Fahd Armed Forces Hospital, 1993, p.2; Borden *et al*, 1994 p.26). Deming emphasises that leadership must play “constancy of purpose” to bring about improvement in the long term (Butrie, Claflin, Damert, Humble and Marta, 1996, p.6). Their commitment is expedient for applying TQM (Preston, Saunders, O’Sullivan, Garrigan and Rice, 1995, p.95). Leaders come from top management and include “the chief executive officer, the governing body and managerial and clinical leaders”(Saddique, 1995, p.23).

Leaders need “knowledge” about the concepts, principles and methods of TQM: “information” about applying TQM and “knowledge about processes and systems” (KFAFH, 1993, p.2; King Abdulaziz Hospital & Oncology Centre, 1998, p.1). According to Kock, the top management must have explicit “understanding”, and “strategy” and should be really “committed” to the concept and applying TQM in the hospitals (Koch, 1991, p.30).

The American Hospital Association (AHA) (1982) defined the six broad categories of the hospital’s leadership responsibilities and functions. These are organisation; public policy and external relationships; resource management; human resource development; education and research; strategic planning (Butrie *et al*, 1996, pp.3-4).

Yarborough (1994, pp.415, 414) defined the term "strategic quality plan" as a process that uses TQM principles to achieve certain goals”. The goal is “continuous quality improvement”. The objectives are “achievement of customers’ satisfaction, business objectives, and the continuous improvement of work processes”. There are many methods for integrating TQM within strategic planning. According to Arvantes (1993, pp. 2, 3), the most common used methods are “Hoshin planning - a Japanese term means policy deployment, the Juran trilogy and visionary planning”.

Clinical governance is a “framework” through which NHS organisations should continuously improve the quality of services and create an environment where clinical care excels. This governance demands cultural change that empowers individuals to change their own practice (West, 2001, p.40).

### 5.2.2 Consumer Satisfaction

A customer is “the person or group who receives the work you do” (Shiba *et al*, 1993, p.41). A customer is also defined as “any organisation or individual who makes quality judgements about, or has expectations regarding, an output” (Decker and Sprouse, 1992, p.170). In health care the term customer covers multiple customers that include “external” and “internal” customers. External customers are “patients, their family and friends, third party payers, the local community and other groups whose needs may be met by the health care system”. Internal customers means all employees in all levels of hospitals, including the “professional, technical, administrative and support staff”. There are complex and dynamic interrelationships among customers (McLaughlin and Kaluzny, 1994, pp.103, 104).

Some people understand the customer in health services wrongly as meaning the patients, while TQM presents a broader meaning of it to cover all the providers and customers within or outside hospitals.

Customer satisfaction is an essential element of TQM (Al Khalaf, 1997, p.127; (Bin Saeed, 1997, p.91). Love, Li, Irani and Holt (2000, p.109) confirm “the development of organisation values, goals and systems that will satisfy customers’ needs”. The customers’ requirements change over time, because of changes in “education, economics, technology and culture.” So the efforts for changing and improving the “managerial and clinical methods” must be continuous to meet these needs and exceptions (McLaughlin and Kaluzny, 1994, p.4).

Hewlett-Packard (Shiba *et al*, 1993, p.42) uses the following guidelines in dealing with customers: identify the customers, their needs, measures and expectations. Also Hewlett-Packard identifies the service and determines if it satisfies customers, and the processes for meeting their needs, expectations and the actions to be taken to improve the processes. The following section will give details about external and internal customers.

**5.2.2.1 External Customers:** Patients are considered as the primary customers in health care (Decker and Sprouse, 1992, p.172). The TQM approach is to know the patients’ views, their needs and expectations, and to recognise these as important requirements in quality services (Scardina, 1994, p.38) to achieve patients’ satisfaction; as their satisfaction is an “important indictor of the quality of long term



comprehensive care” a necessary attribute and outcome of quality (Reimer, Haan, and Limburg, 1996, p.144). Thompson (1995, pp.71-79) discussed the change in terminology in the public sector to describe patients as customers. He describes how TQM made patients the focus of quality and discusses the validity of describing patients as customers, especially when they are in make negotiating position, as they are ill and in need of medical treatment.

Luft (1981, p.156) characterized satisfaction as being related to access, availability of resources, continuity of care, information transfer, humaneness, and quality. Patient satisfaction is not defined easily (Arnetz and Arnetz,, 1996, p.555). Linder-Plez (1982, p.578) defined it as “The individual’s positive evaluations of distinct dimension of health care”. Occasionally some of the writers criticize the interest in the positive aspects of care such as Cleary, Edgman-Levitan, McMullen and Delbanco (1992, p. 58) instead they believe that the health care organization “need to know what is wrong, not what is right”. Taylor (1994, p.224) defined patient satisfaction as a “special form of consumer attitude, that is, as a post-experience phenomenon reflecting how much a patient likes or dislikes the service”. Singh (1990, p.10) believes that patient satisfaction is a “multidimensional (probably a tripartite) evaluation of various aspects (quality and non-quality) of health care received in a specific episode”, and their satisfaction with respect to physicians, hospital and insurance provider. John (1992, p. 209) believes that “patients expectations result from perceived quality.  $\text{Perceived quality} = f(\text{expectations, perceptions of current firm performance})$ ”. Also, there were the variations in the patients’ evaluations; the quality expected depends on their values, needs and expectations. It is also dependent on their “socio-demographic” and socio-economic characteristics, “physical and psychological stat” and or the type of hospital in which they are treated. Scholte, De Haan, Limburg and Van den Bos (1996, p.144).

According to Kolodinsky (1999, p.224-226) many researchers focused their study of patient satisfaction on aspects of care that are specific to the health care experience, the process of health care delivery, the market performance of managed care plans using supply side measures, such as the provision of care, length of hospital stays, number of physician office visits, and cost structures. Kolodinsky (1999, p.223)

indicated that “personal experience, expectations, and judgments about services covered influence overall satisfaction with the plan. Individual differences have little effect on satisfaction”. Bowers, Swan and Koehler (1994, p.49) examined five attributes of quality (empathy, responsiveness, reliability, tangibles and assurance). The results indicated that the first three attributes were significantly related to patient satisfaction.

The first step for patient satisfaction is the identification of the patients’ perspective about quality and its dimensions, and how they evaluate it. The quality Management Workshop for Hospitals in Saudi Arabia (1994, p.6) offered critical dimensions of quality related to patient perspective, which include: Access, with respect to location, hours of operation, visiting hours, appointment waiting time, waiting time at the facility. Processes, including explanation of care given and continuity of care. Service Delivery, including warmth and friendliness of physicians, nurses and others, level of privacy provided, time spent, availability of staff and billing process. Clinical Outcomes, including technical skills of physicians, nurses and others and complications thereof. Resources, including equipment needed to perform the service, specialist’s availability and outside services. Amenities, including meals, cable TV and telephone. Facilities include car parking, the building location and cleanliness.

Thompson (1999, p.462) found that few patients and no physicians were happy with the idea of ‘customer-as king’. Most of the patients and physicians agree with the idea of ‘shared decision-making’, while the “paternalistic model offered the greatest opportunities for efficiency”. Some argue that patients are unlikely to be able to judge the effectiveness of any treatment, as they are unable to evaluate the “technical component of medical care” (Decker and Sprouse, 1992, p.172). This may relate to a lack of understanding and past experience of health care (Robinson and Thomson, 2001, p.134). WHO (1981) advocated the right of the patient not only to receive full information about his or her health status, but also to have some say in decisions affecting their health” (Popoola, 2000, p. 130). Lloyd (2001,p. 114) focused on risk information and there is a need to understand how people code risk information. Wagner (1988); Rubin (1990); Kaplan and Greenfield and Ware (1992) and Larrabee (1995) believe that patients can “evaluate the quality of interpersonal



aspects of care and amenities and some dimension of technical aspects of care” (Larrabee, 1995, p.12). Also, there were the variations in the patients’ evaluations; the quality expected depends on their values, needs and expectations. It is also may depend on their “socio-demographic and socio-economic characteristics, the variety of different predisposition factors, diagnostic variables or an individual’s prior health status (patients with poorer physiological and psychological health were less satisfied) and the characteristics of the hospital (employees who are satisfied with different aspects of their working environment are likely to increase patient satisfaction) (Jimmieson and Griffin, 1998, p.82-85). Arnetz and Arnetz, (1996, p.564) found in their study that the younger, female and sicker patients were generally less satisfied and there was an association between satisfactory pain control and higher rating on quality care. While Venkatapparao and Pradeep (1995) found in their study that the influence of socio-demographic variables is weak, and to improve patient satisfaction there must be an improvement in the delivery system relating to quality of care such as technical quality care, physicians’ interpersonal skills, office facilities and answers given to patients’ medical questions. Haran, Iqbal and Dovlo (1993, p.769) suggested the main elements that affect patient satisfaction, include “physician, drug, diagnosis, duration, distance, affordability, prompt services, etc”. Atkinson (2001, p.60) interested to give facts about technical care, amenities and the cost of treatment of hospital to the patients effect in patient satisfaction.

Vuori (1991, p.184) believes that patient satisfaction is an important element in output of health care and, “if patients are dissatisfied, health care has not achieved its goal”, despite the difficulty in determining what satisfaction entails. In general, there are many points that can be cited to justify the study of the satisfaction of the patients and learning their opinions about the health services provided. Satisfaction is an important element of psychological health (Al Hamad and Al Shouaib, 1991, p.8), satisfied patients are more co-operative with the medical staff, “more likely to continue utilizing health care services, maintain a relationship with specific health care providers and comply with medical recommendations” (Jimmieson and Griffin 1998, p.82). This is due to attaining the suitable diagnosis and treatment (Doering, 1983, p291). Also, it provides information about evaluation of health service from the point of view of the patient. This feedback is used as a tool in the field of research,

planning and making the policies relating to health care (Al Hamad and Al Shouaib, 1991, p.9).

The TQM process emphasises the need to know the patients' needs and expectations. Scardina (1994, p.39) proposed that there is a need to know the patients expectations, and these can be defined as "those preconceived notions the consumers have about the kind of care they should receive". These patient expectations "depend on his/her problem and the goals-seeking activity in relation to medical care, with practical experience and knowledge" (Thompson and Sunol, 1995, p.129). According to Germaine (1974, p.20) expectations include the "availability of professional care, the individuality of treatment, and the competence, experience, maturity, dependability, knowledge and skill of the nursing staff". Thompson and Sunol (1995, p.130) provided four types of expectations, "ideal, predicted, normative and unformed". Thompson and Sunol (1995, pp.130, 131) clarified these types as following:

- **Ideal:** The perfect or preferred conception of the health services that pairs up with user's conception of the service's potential, it is related to "an aspiration, desire or preferred outcome" and an interest in an "idealistic state of beliefs".
- **Predicted:** The realistic and applicable outcome is concerned about what patients actually believe will happen in service encounter. It is affected by their experiences and knowledge.
- **Normative:** What is supposed to take place, "meaning what should happen and could be equated with what users are told, or led to believe, or personally deduce what they ought to receive from health services. It is related to a subject and a socially endorsed evaluation".
- **Unformed:** happens when patients are unable or unwilling, such as when users fail or do not want to clarify their expectations. The situation may change after gaining some experience.

These expectations not only refer to the consistency and competence of care but also to the personal touch (Staniszewska and Ahmed, 1998, p.38) as patients' expectations are also related their behaviour which correlated with their beliefs and



evaluations and is affected by many elements such as personal and social influences (Thompson and Sunol, 1995, pp. 130,135).

In general, perceived performance above that expected increased patient satisfaction, while perceived performance below that expected decreased patient satisfaction (Oliver, 1980, p.469). And different types of expectation are characterised by a range of levels, rather than a single level (Newsome and Wrigh, 1999, p.15). To achieve the ideal expectation the hospital may need to provide the desired service, which is defined as the “level of service the customer hopes to receive, the wished for level of performance” (Zeithaml and Bitner, 1996, p.21). These kinds of services lead to the ideal quality that achieves patients’ happiness, while if it does not occur, it does not lead to unhappiness (Bin Saeed, 1997, p.92). But to achieve it is not always possible or easily achieved, or may simply be inappropriate for many common medical scenarios, for this reason we hold to a lower level expectation. To achieve predicted expectations the hospitals need to provide a “predicted service at the level of service customers believe they are likely to get and implies some objective calculation of the probability of performance” (Zeithaml and Bitner, 1996, p.21). To achieve normative expectations the hospitals provide adequate service, “representing the 'minimum tolerable expectation' or bottom level of acceptable performance” (Zeithaml and Bitner, 1996, p.21). These services lead to adequate quality that may achieve patient satisfaction and harmonize their expectations but not above what they expected (Bin Saeed, 1997, p.92). According to Zeithaml and Bitner (1996, p.21) customers recognise these service performance may vary and the extent to which they recognise and are willing to accept this variation is called the zone of tolerance.

The UK NHS provides a list of patient’s charter rights. See Table 5.1.

Table 5.1

### Patient's Charter Rights of NHS

1. To receive health care on the basis of clinical need, regardless of ability to pay
2. To be registered with a GP.
3. To receive emergency medical care at any time, through your GP or the emergency ambulance service, hospital accident and emergency departments.
4. To be referred to a consultant acceptable to you, when your GP thinks it is necessary, and to be referred for a second opinion if you and your GP agree this is desirable.
5. To be given a clear explanation of any treatment proposed, including any risks and any alternatives, before you decide whether you will agree to the treatment.
6. To have access to your health records, and to know that those working for the NHS are under a legal duty to keep their contents confidential.
7. To choose whether or not you wish to take part in medical research or medical student training.
8. To be given detailed information on local health services, including quality standards and maximum waiting times.
9. To be guaranteed admission for treatment by a specific date no later than two years from the day your consultant places you on the waiting list.
10. To have any complaint about NHS services - whoever provides them - investigated and to receive a full and prompt written reply from the chief executive or general manager.

Source: Kock, 1992, *Implementing and Sustaining Total Quality Management in Health Care*, p.4

According to Ryan, Collins, Dowd and Pierce (1995, p.45) there is no consensus about determination of the points of health services that must be used in measuring patient satisfaction, but there were many suggestions by researchers. There are three points for measuring the patient satisfaction: technical, professional, interpersonal educational relationship and interpersonal trusting relationship. Also there are seven dimensions for measuring the patient satisfaction namely: "(1) respect for the patients' values, preferences, and expressed needs, (2) co-ordination of care, (3) information and education, (4) physical comfort, (5) emotional support and alleviation of fear and anxiety, (6) involvement of family and friends, and (7) continuity and transition".

The patients always have many expectations when they come to the hospitals. The question is can the public hospitals provide and realise all their expectations under the prevailing conditions, especially in the developing countries? Although the quality in the public health services is considered as the right of all citizens, in the public sector the idea of the patient as a customer is a more problematic concept. Caster (1999, p.42) notes that "unsatisfactory as a 'pure' definition for the public sector". The government may not be able to satisfy the demands of all their patients for many reasons (Morgan and Murgatroyd, 1994, p.54). For example in the public services employees have "too much demand, too little supply, unclear and ambiguous goals, isolation at the front line and low expectations of services users" (Gaster, 1995, p.1). Under the limited resources in the public sector the hospitals can relies patients'



expectation that match their resources, for example the ideal expectation may be difficult to achieve in public hospitals. The public hospitals must distribute their resources equitably and achieve the main aims of equity that include option freedom, equality dealing, providing at least a minimum level of health care to the whole population (see chapter 3). The hospitals must distinguish between the needs and wants of patients, also between the types of patients' expatiations.

Unlike several developed countries, insurance companies play a limited role in the health sector of most of the developing countries such as KSA, where government is the only major provider of health services. In such a health system, where there is no competition among health care providers, customers do not have options to choose from. Since the population is not literate enough and patient organizations are generally non existent to protect their rights, and a government consider as a major decision makers for utilisation of available recourses in public heath sector. A government may be concerned with providing 'effective and efficient' health care services at an appropriate and acceptable level with limited resources.

The families and friends of patients are also important customers. Many publications are sent to them as "counselling and direct training" information about some critical diseases. In many cases they become "surrogate" patients. They have a strong effect on the concerned patients' decisions, satisfaction, and are considered as a "valuable source of information" (McLaughlin and Kaluzny, 1994, pp.103, 117). Third party payers, those who pay for most of the medical care, are also important customers. The group buyers of health care include the government, unions, and businesses. The main issues for them are the "effectiveness and cost" (Ellwood, 1988, p.155).

**5.2.2.2 Internal Customers:** The concept of internal customers "presents the view of the organisation as functioning horizontally rather than vertically" (McLaughlin and Kaluzny, 1994, p.104). The web of relationships among customers clarifies the dependence of "each group of health care workers on the efforts of the others and on the processes within which they work" (Decker and Sprouse, 1992, p.170). Each group has reciprocal roles as suppliers and customers; for example, physicians are suppliers to their patients. In turn, the physicians are customers who request

medications from the pharmacy. The pharmacy is a customer of the nursing staff, whose responsibility is to distribute the requested medications to the patient (McLaughlin and Kaluzny 1994, p.117).

The idea of employees' satisfaction is not new, but TQM adds the idea of employees as customers. For measuring employees' satisfaction, one must gather information from the employees with the aim of viewing health work from the customer's perspective.

The physician may play the most vital and leading role in the treatment plan of patients. McLaughlin and Kaluzny (1994, p.117) believe that he/she is the "key internal customers, whose loyalty can be measured through their satisfaction with services"; they suggested three strategies to assess physicians' satisfaction. Physicians are asked first to "benchmark" the hospital's services relative to its competitors. Secondly, to ascertain the degree to which those services fall short of, meet, or exceed physicians' expectations. Finally, to use this information to determine where to invest scarce resources in ongoing service quality.

### **5.2.3 Focus on Process**

TQM focuses on "the system and process, not on the individual" (Miller and Flanagan, 1993, p.62). TQM stems from; "better outcomes achieved from better process" (Reinertsen, 1993, p.7), and "unstable or erratic processes that tend to error result in waste, losses and in undesirable outcomes and increased cost" (Keill and Johnson, 1994, p.3).

The idea of a continuous improvement process depends on the fact that any organisation is a system, and the system includes a series of correlated and integrated processes that lead to an end result. So every process would be given an adequate analysis and improvement, with a special interest in the relationship between the process and the internal and the external environment (Abu-Al Khair, 1994, p.84).

Health care organisations and quality consultants have developed numerous process improvement models (Keill and Johnson, 1994, p.5). Some of these models are:



- The Hospital Corporation of America developed the FOCUS-PDCA cycle (Butrie *et al*, 1996, p.30). It includes the following steps: “Find a process to improve, organise a team that knows the process, clarify current knowledge of the process, understand causes of process variation, select the process improvement, plan the improvement, do data collection, data analysis, and improvement, check data for process improvement and customer outcome, and act to hold gain and continue improvement” (Duncan and Fleming and Gallati, 1991, p.108; Decker and Sprouse, 1992, p.171).
- Organisational Dynamics developed the FADE model, which includes “focus and narrow a list of problems to one, analyse, collect data and determine influential factors, develop and formulate a plan to solve the problem, execute, gain an organisational commitment, put plan into action, and monitor effect”( Keill and Johnson, 1994, p.2).

The above models represent the notion of continuous improvement of process, which will assist in the right execution of each process and function first time and every time.

The focus on process does not mean that the outcomes are no longer a concern, but rather that the improvement process is linked to, and should result in an improvement of the outcomes (KFAFH, 1993, p.3). According to McCartney and Brown (1999, pp.6, 7) health outcome is defined as “the effects on health of specific intervention delivered by health professionals and measuring these effects” and there were three elements that determine and measure the outcome. These are: “the patients’ problems and need, the medical intervention and the end results of interventions”.

There is a variation between “process capability and process performance” (Al Sulaimi, 1995, p.58), as well as between the process and the outcome. Moreover, there are also opportunities for improving quality. So TQM needs to monitor the quality. Berwick, Godfrey and Roessner, (1990, p.41) suggest that the monitoring and evaluation functions include input, process and output. While Decker and Sprouse (1992, p.159) state that monitoring the quality “includes both medical staff function and hospital services function”. Borden *et al* (1994, p.202) put the Regional Quality Management Program in Saudi Arabia (RQMP) propose that it includes measurement of the structural process and the outcome aspects of the clinical, support, managerial

and governance functions of the organisation. The idea of evaluation correlated traditionally with inspection to just underlying if the standards are met or are not, identifying human errors in the process and personnel responsibility. But the idea of evaluation in TQM emphasizes the value of self-assessment (Jackson, 1999, p. 59) and system errors and the continuous nature of improvement. Moreover, the improvement is the responsibility of all personnel and the standards are planned to emphasize a process for continuous improvement rather just underlying if the standards have been met or not (McLaughlin and Kaluzny, 1990, p.11).

TQM needs to set out standards and indicators for monitoring and evaluating the quality in health services. A standard means a “description of how an activity, task or procedure, should be performed, or an account of the characteristics that an instrument, or a specific resource, should have” (Montoya-Aguilar, 1994, p.10). “Standards should be up to date, that is to be changed when and if necessary, to have a scientific basis, in the sense that their application ensures a certain level of effectiveness of health care, be relevant for the region where they are applied, be realistically implementable and measurable and be applicable to specific situations, be presented in the different educational levels and to the different cultures within each country, and compiled in manuals for training and for guide of day-to-day work at each level of health care system” (Roemer and Montoya-Aguilar, 1988, pp.42,43).

Standards can be useful in determining the level of quality in health services. This level can be defined as the “degree of compliance of the actual activity or resource with the corresponding standard” (Montoya-Aguilar, 1994, p.22). Standards also have multiple benefits for the QIP administrators (AL Mola, 2001, p.112). Indicators can be defined as “a measurement selected to show in a concise way or as a proxy, the magnitude of a phenomenon” (Montoya-Aguilar, 1994, p.22). Characteristics of indicators are “validity, reliability, achievable, clarity, current” (Khuddiar, 1994, p.32), “sensitive and specific” (Decker and Sprouse, 1992, p.162). Indicators can be used to identify more efficient care, modify clinical practice guidelines and customer satisfaction (Borden *et al*, 1994, p.196).

Standards and indicators may also cause problems in hospitals. The measurements of health services are affected by a number of environment factors. The standards and indicators should tend to focus on adequacy rather than excellence and are necessitated by underlying legal environment especially in developing countries (Vladeck, 1990 pp.35, 36). There are many difficulties in measuring some elements of



health care such as outcome (for example, the dissimilarity of patients' cases, medical complications and interrelationships of health services). In general, the measurement of quality and patient satisfaction in health services is not easy as all customers have a different perception of what constitutes good quality (Desombre and Eccles, 1998, p.23). Lehtinen and Lehtinen (1991, p.287) found that different customer groups evaluating services use different criteria and these criteria vary depending on the situation and circumstances. Patients' expectations and properties vary among countries and are highly related to cultural background and to health care system circumstances (Salomon, Gasquet, Mesbah, and Ravaud, 1999, p.507). Kolodinsky (1999, p.223) found "that personal experience, expectations, and judgments about services covered influence overall satisfaction". Their experience, expectations, and judgments affected by their behaviours, attitudes and values are also affected by many elements such as education and social level.

#### **5.2.4 Cultural Environment:**

Many researchers believe that TQM is based on the requirement to establish a deep-rooted culture about quality. According to Zain-Al Deen (1996, p.47) and Al Nummani (1996, p.31) culture is the creation and development of a base of firm values and convictions. In terms of TQM a change in the culture is required to ensure that everyone in the hospital works in accordance with the concept and principles of TQM. He stressed from the beginning the importance of spreading the consciousness of quality and preparing all employees psychologically and occupationally to understand, accept and be convinced of the concepts and practices of TQM. Giving attention to providing facilities needed to be implemented at this stage. In spite of the importance of preparing all hospital employees, whether clinical or non-clinical staff, to implement TQM, doctors represent the category of the least interested employees in the programmes of TQM. Maybe it is because professionals have their own culture, which is not interested in organisational priorities, but rather the needs of the patients, medicine and health (Morgan and Murgatroyd, 1994, pp.73). Also perhaps because many physicians' believe "that they are already doing quality work, physicians' relative inexperience or unwillingness to work as members of team, physicians' perception that TQM is "primarily a cost-control mechanism" and TQM as representing a threat to the independence that distinguishes the medical practices, hence they are resisting such efforts for fear of limiting the freedom and quality of



decision making on health care (Shortell, 1995, p.16, 17). McLaughlin and Kaluzny (1990, p.8) are confirming this opinion as they indicated that there is a conflict between the quality management and many of the axioms pertaining to the independence of physicians, as quality management represents a real challenge to the physicians' method of thinking about quality and their manner of evaluation and organising themselves and of attaining and preserving their independence.

The cultural dimension "refers to the underlying beliefs, values, norms and behaviours of the organisation that support or serve as a barrier to organisation-wide improvement" (Shortell *et al*, 1995, p.5). The culture of an organisation is about "how people work together, their relationships and the feelings engendered by their behaviour". Culture change is an important factor in TQM. It means changing the people's attitudes to work, their perception of management, their values, motivation and behaviour to be compatible with TQM (Jeffries, Evans and Reynolds 1992, p.145).

Changing the culture of the hospital is not an easy process because such change calls for substantial changes in the methods of thinking and performance and takes a long time. In developing countries, hospitals need a substantial and real change in their culture. This can be accomplished by determining the factors that ought to be changed to create the culture appropriate for implementation of TQM. Moreover, the differences in education levels and culture between the hospitals in the developing countries and those in the developed ones should be considered by the developing countries that can benefit from the experiences of the latter in the implementation of TQM. There are many principles that can be summarised to improve the culture environment as follows:

#### **5.2.4.1 Organisational Environment:**

According to Saddique (1995, p.21), the organisational environment should encourage the "involvement of all staff in quality related activities, self assessment, open communication, participation in decision making and fair conflict resolution at and among all clinical and managerial levels". The organisation structure should be flat, integrated, breaking down barriers, and with horizontal communication. Al Nummani (1996 a, p.31) emphasised the reduction of the levels of organisational structure to three or four. Bin Saeed (1997, pp.79, 81) focused on the necessity of having a department for quality management in the hospital. Responsibilities of this



department include: the co-ordination of the procedures of supporting the TQM programmes, the supervision of the tasks of the staff in the quality management departments, improving the level of care provided to the patients, co-ordination, direction and providing advice, systematic and comprehensive evaluation of the quality management programme over the administrations, departments and sections. Cao, Clarke, and Lehaney (2000, p.191) suggested four kinds of organisational change that support TQM. "These are: changes in organisational processes and control over processes; changes in organisational functions, their organisation, co-ordination and control; changes in organisational values, beliefs and human behaviors in term of relationships to social rules and practices; and changes in organisational power distribution and the way organisational issues are influenced".

#### **5.2.4.2 Management Style:**

According to Jeffries *et al* (1992, p.144), the management style should focus on "empowering people, helping them build the skills, confidence and attitudes to take responsibility for their own work, rather than forcing them to do it". Love *et al* (2000, p.109) also emphasise the need to change the bureaucratic top-down management cultures to those based on personal accountability, individual empowerment, open communication and feedback. Frequently, the implementation of TQM through legislation is impossible. Therefore, a suitable managerial style should be adopted to contribute to creating an organisational environment that is appropriate for the implementation of TQM.

#### **5.2.4.3 Knowledge and Understanding:**

Top management must have an in-depth knowledge of the concept, principles and practices of TQM. Before implementing it, as many employees as possible must also have an understanding of the tools, techniques and concepts of TQM (McLaughlin and Kaluzny, 1994, pp.26, 27). This must be supported by the need to provide a database and an information system that guides the employees in understanding and implementing TQM.

#### **5.2.4.4 Patience:**

Hospitals may take a long time to implement TQM successfully, so the management, employees and patients need to be patient. "Some experts believe an

organisation needs ten years before it is completely transformed into a TQM organisation". Patience is important so people become "knowledgeable to begin planning" TQM activities, "training, start-up a few projects to TQM, represents major opportunities for improvement". This time frame "requires strong management commitment and vision to provide the staying power and the direction for such a lengthy journey" (McLaughlin and Kaluzny, 1994, p.29). This illustrates that management should take a long-term view of TQM in hospitals.

#### **5.2.4.5 Commitment:**

Commitment includes all the employees at all levels and team work (Aperatec, 1994, pp.18, 19). It begins from the very top including the "senior clinicians, managers (Kock, 1992, p.16) and the chief executive" (Saddique, 1995, p.20). To obtain the commitment of hospital employees there are requirements such as: "increasing knowledge about quality, developing new skills, fitting personal contribution into an organisational picture of quality management" (Kock, 1992, p15), "involvement of all the staff in the decision making and problem solving activities" (Aperatec, 1994, p.19) and persuading employees of the importance of TQM when they are doing their jobs (Ovretveit, 1992, p.144). The long-term commitment of all the employees is necessary to implement the CQI of all process and activities in hospitals.

#### **5.2.4.6 Fact-based Decision-making:**

Clinical and non-clinical employees in hospitals need to take accurate and fast decisions relating to the quality of clinical and managerial services. These decisions must depend on "facts" (Berwick *et al*, 1990, p.46), and limit non-objectivity and mistakes and find real opportunities for CQI. They should also depend on data and information, which are continuous and periodically collected and analysed (Al Khalaf, 1997, p.129) and should use TQM tools (Bin Saeed, 1997, p.99). Hospitals that are implementing TQM cannot make individual or hypothetical decisions or expectations based on personal opinions because the decisions in such cases are vital and sensitive. The patient is in a unique position because he/she is the one who is the direct loser of his/her health. Perhaps he/she expects provision of the best possible treatment for specific disease in the shortest possible time with maximum possible convenience. Therefore, giving the patients information, based on facts about treatment and



diagnosis may affect their satisfaction. The problem in health care is that many areas of practice have inadequate or no scientific basis, and clinical decisions are sometimes based on a clinician's preference and experience (Marwick, Grol and Bogreil, 1992, p.32). There are wide variations in outcomes of clinical process (Coulter and McPherson, 1988, p.285), therefore, TQM and patient satisfaction programmes should provide a sound justification for the decisions made by clinicians, there should be the least possible variation between the treatment methodology for a typical disease. Perhaps it is useful if it depends on scientific indicators or consensus of specialised staff (Al Ahmady, 2000, p. 425). Moreover, the patient must know all the information about treatment and diagnosis, participate in the choice of treatment and understand the limits of treatment. Again, the problem is perhaps because many of the patients, especially in developing countries, have little knowledge about the facts which been given to them. But if it explained simply, and there is a good relationship with the patient, this can be useful in terms of patient satisfaction. Moreover, comprehensive information systems are needed to keep track of patient data, care plans and outcomes (Atkinson, 2001, p.60) and to give facts about technical care, amenities and the cost of hospital treatment to the patients affects patient satisfaction.

#### **5.2.4.7 Prevention:**

Prevention considers the continuous maintenance of the hospital, as quality is achieved from prevention and not from inspection. That means get it right first time (Al Nummani, 1996 a, p.44). The TQM emphasis is on “investment to understand the process and sources of process variation”. It depends on identifying the errors, problems in clinical and non-clinical process in hospitals before they happen, aiming to avert them. This is because some clinical errors have critical reflections on humanity, society and economical aspects. However the possibility of the occurrence of problems is a fact, so TQM also emphasises problem solving (Jablonski, 1991, p.27).

TQM provides many principles for management and staff to be capable of deciding and implementing appropriate corrective and preventive actions. “The action must remove or minimise the root causes of the problems and preventing their recurrence” (Aperatec, 1994, p.18). Some of these principles are:

- Consider the problems as “opportunities for improvement” as long as the team working have identified the problem before it happens (Jablonski, 1991, p.28).
- Control of process deviations, whether it is for general or individual reasons (Bin Saeed, 1997, p.97).
- Continuous checks, reviews and analyses of the process (Al Khalaf, 1997, p.130).
- Developing the idea of prevention and self-evaluation at all staffing levels, to be considered when they are doing their daily jobs (Bin Saeed, 1997, p.97).

Other TQM principles that contribute to doing the right thing the first time include training and education. Training contributes to knowing where the problems are and how to solve them, such as involving all employees in the issue of quality, encouraging teamwork and using tools of TQM.

#### **5.2.4.8 Information:**

TQM believes that information management should be as important as other resources in hospitals, and that information is a “corporate asset that needs to be managed across departmental boundaries” (Bergman, 1993, p.68). It emphasises management information systems in hospitals that can “contain both the manual and the automated methods that provide information for decision making” (Butrie *et al*, 1996, p.62).

Information management systems can be used to support “quality improvement, cost control and productivity, client registration, utilisation management, programme planning and evaluation, external reporting, research and education”(Butrie *et al*, 1996, p.63). It also contributes to identifying problems, provides evidence that leads to solutions, and evaluates the result of implemented strategies (Burton and Hoy, 1993, p.20). According to Butrie *et al* (1996, pp.63, 64) information systems can be divided into “clinical information systems, administrative support information systems, and decision support systems”. Clinical information systems include: “medical records and their retrieval systems, computer assisted medical decision making for history and physicals and antibiotic selection, and for selecting clinical application programmes for health risk programmes and MOH encounter data”. Administrative support information systems include “financial and human resources information systems, and office automation systems”. Decision support systems deal



with “strategic planning functions”. All data and information used should be obtainable, appropriate and precise (Bryant, 1989, p.13). As a result of the rapid advancement of computer technology and information technology, hospitals need to continuously improve their databases, supporting their staff with technical skills and training to utilise information.

#### **5.2.5 Human Resources Management (HRM):**

HRM that can be defined as “all management decisions that affect the employees - its human resources” (Morgan and Allington, 2000, p.35). Human resources are considered necessary for success in the implementation of TQM. There is a need to emphasise the management of human resources in all its aspects, starting from setting a system of selection and appointment, evaluating the performance, training programmes, motivation, teamwork, contribution and co-operation in solving problems. Human resources are one of the most important elements that TQM focuses on, and the involvement, co-operation of all staff is essential to the success. The strategic interests of HRM in the development of a highly motivated and skilled work force should be linked to a long-term goal, to contribute to applying TQM (Love *et al*, 2000. p.110). Carpinetti, Santos and Goncalves (1998, p.114) found from their case studies in many companies that the HRM in TQM must take a lead in activities such as “training, intensive communication programmes, organizational climate and cultural change monitoring, support the consolidation of teams and support in self-control and empowerment programmes and administrative transparency”.

##### **5.2.5.1 Total Employees’ Involvement:**

TQM believes that quality is the responsibility of all employees and “part of everyone’s job, not an add-on” (Kock, 1992, p.33). Everyone, in any level, can play an important role in improving the quality of the process and in providing solutions to problems (Berwick *et al*, 1990, p.47). Therefore, TQM emphasises the “ongoing total staff involvement”. The participation of employees in hospitals includes clinical and non-clinical staff. Their participation should start in the early stages from the preparatory and fundamental steps, such as involving senior managers and clinicians in formulating and developing the quality strategic plan and programme (Kock, 1992, p.47), involving employees in designing the process and job system, improving the

quality process and performance and solving quality problems (Al Khalaf, 1997, p.125).

Clinical staff such as physicians and nurses have a strong interest in all aspects of health services (Gates, 1993, p.56), therefore, they should be involved in TQM in several ways and at various levels, via: “medical director (on board), quality improvement (QI) steering group, medical professional machinery, clinical director co-ordinator, clinical audit committee, clinical teams, general physician (GP) liaison, service specifications, and business planning” (Kock, 1992, p.36). Quality in the new NHS “implies the need for an integrated approach to quality for clinical governance. It involves: team leadership and team development; the means to disseminate knowledge about relevant evidence from research; clinical audit skills; risk management skills; information systems; continuing professional education and development” (Firth-Cozens, 1999, p.1).

Many authors, such as Smith, Adams, Bersante and Kalma (1994, p.76), Smith (1995, p.26), Carman and Shortell (1996, p.58), showed their interest in early involvement of physicians in the TQM programme. This would have positive effects on the success of TQM. RQMP in Saudi Arabia (Borden *et al*, 1994, p.12) provided many suggestions to strengthen the physicians’ involvement in TQM as follows: “demonstrate top-to-lower levels commitment, involve physician leaders, involve physicians in planning and in cross-functional projects, build on physician’s existing interest in quality, emphasise process and data and set realistic expectations for the physicians”.

If all the employees are not involved in the implementation of programmes of TQM in the hospital, the chances of success for its implementation will be limited.

#### **5.2.5.2 Teamwork:**

Co-operative work is not a new concept. The new thing which TQM adds is that “employees working as teams” (Saddique, 1995, p.13) and formulating quality improvement teams (QIT), such as “quality circles” (Al Muji, 1995, p.1) and “quality councils” (Butrie *et al*, 1996, p.31). Deming was interested in the teamwork system, and rewarding the creative teams, as TQM focuses on providing health care through “teams” (Al Gahttain, 1993, p.26). Al Hayjan (1994, p.430) and Coffey, Eisenberg,



Gaucher and Kratochwill (1991. p.26) emphasised forming quality improvement teams (QIT) that contribute to determining problems and their solutions, and finding the opportunities for improvement. While Caldwell emphasised “management style which must give QIT the power to develop and recommend solutions and implement them as well” (Koska, 1992, p.48).

Teamwork is an embodiment of co-operation and participation among employees instead of competition (Bin Saeed, 1997, p.95), as well as comprehensive work. Teams are useful in: “investigation, solution and resolution of problems of negligence in daily work” (Dimant, 1991, p.211), understanding of each other’s needs (Berwick *et al*, 1990, p.146), stimulating the creative ability of employees, employee satisfaction, spreading knowledge of the organisation’s mission and vision, breakdown of barriers to communication and commitment (McLaughlin and Kaluzny, 1994, p.28). Quality improvement teams also contribute to “facilitating dialogue, understanding and the knowledge of processes that cross formal departmental boundaries, provide a useful setting for formal training of employees in quality and teams and can help keep projects on schedule and moving along” (Berwick *et al*, 1990, pp. 67, 68).

To encourage teamwork, Saddique (1995, p.13) suggests that each member must be trained in team dynamics and how to work effectively with team members, modification of the performance evaluation systems and bonus system, respect and trust in employees’ suggestions. According to McCabe (1992, p.137) teams must define and understand the “mission, strategic objectives, improvement goals, procedures, protocols and communications, skills, responsibility and authority” to improve.

#### **5.2.5.3 Communication:**

As is evident from the above, TQM involves all human resources in hospitals, and like any human activity depends on the effective communication of people with each other. So communication is an essential element in the successful implementation of TQM. It is an “ongoing process” (Jeffries *et al*, 1992, pp.153, 155), which means “communicate the right information, the right way at the right time to the right people” (Butrie *et al*, 1996, p.119). Hospitals must improve the organisation’s ability

to communicate, “Internally, up, down, and laterally, and externally” (McLaughlin and Kaluzny, 1994, p.28). Moreover, every one is “responsible for their part of the communication network” (Jeffries *et al*, 1992, p.156).

Good communication contributes to improving performance (Butrie *et al*, 1996, p.119), reducing “confusion, dissension, disharmony, and low morale” and can be used as an indicator of the degree of excellence of an organisation (McLaughlin and Kaluzny, 1994, p.28). Roy (1991) outlines a ten-point checklist for quality communication, which has been adapted by the NHS as shown in table 5.2:

Table 5.2  
**Checklist for Quality Communication of NHS**

1. Do you regularly refine views of quality from hearing your staff views?
2. Are messages about TQM regularly appearing from the top?
3. Is there a unitwide quality statement?
4. Have you developed a written quality communication plan?
5. How do you ensure individual audiences, e.g. medical, are targeted?
6. How do you communicate good practice and QI success?
7. How do you reinforce QI more than product improvement?
8. Do you use all the main communication tools?
9. Do you track, analyse and publicise QI progress?
10. Do you regularly refine your views of quality as a result of hearing patients' views?

Source: Butrie, Claflin, Damert, Humble and Marta, 1996, NAHQ Guide to Quality Management, p.30

There is a need to set up an effective communication system in hospitals, which enables the participants to provide and receive feedback information, using different and suitable methods.

**5.2.5.4 Continuing Training and Education:**

In the health sector, ongoing training and education has become very important (Casalou, 1991, p.144; Saddique, 1995, p.10) mainly due to the rapid rate of technological change in health care.

Training and education begin with the senior management (Ellis and Whittington, 1993, p.52) and “cascade down”, including employees at all levels in the hospital (Butrie *et al*, 1996, p.128) for all jobs, whether professional, technical, clerical or support. It support staff with skills, knowledge, experience and behaviours, which aid them in achieving distinctive performance first time around (Al Khalaf, 1997, p.126).



It aims to “ensure the appropriate procedural, conceptual, practical skills and set of attitudes and values that lead to commitment” to TQM (Thomas, 1992, p.170). It must involve staff that are trained and aware of “their jobs and their roles” (Butrie *et al*, 1996, p.129). Also there are many benefits from employees’ training and education such as: modernisation and development of the performance, motivation of the employees and establishing a common understanding and language among employees, employees’ satisfaction and reducing the problems and the time of top management (Bin Saeed, 1997, p.181).

#### **5.2.5.5 Creativity:**

TQM encourages the ability of the employees to be creative, to give them the chance to invent new ideas and methods, which contribute to the continuous improvement of the quality of work. Employees who are encouraged and motivated to be creative are always surprising their managers with new and practical suggestions, which contribute to the improvement of work (Al Hayjan, 1994, p.433). TQM provides many suggestions such as: enabling the employees to take decisions related to new ideas and methods, to make suitable changes, to identify solutions to problems before they happen (Al Khalaf, 1997, p.129). TQM also gives the employees authority and resources that are needed for creativity in their jobs, as well as setting motivation systems and standards of performance which are suitable for the invention concept (Al Hayjan, 1994, p.433). Other TQM principles also contribute to encouraging staff to be creative in their work.

#### **5.2.6 Containing the Quality Costs**

Counting the cost means reducing the cost or at least increasing the size and quality of health services rendered, while maintaining the present level of costs, or allowing costs to rise at a low rate while achieving a high rate of growth in the size and quality of health services rendered (Mattar, 1992, pp.50, 70).

Quality management workshops for hospitals in Saudi Arabia (Borden *et al*, 1994, pp.5, 9) and Khuddiar (1994, p.17) defined the total cost of quality as the cost of getting it right first time and the cost of not getting it right first time. The first kind of costs are called “conformance costs” and costs associated with quality including “prevention and appraisal costs”. The second kind of costs are called “non-

conformance costs” and are associated with poor quality, including “failure costs and costs of exceeding requirements” (Al Furs and Al Adeeli, 1995, p.106; Kock and Higgs, 1991, p.4). These costs are the costs of “waste, rework, excess, complexity, unreliability” and delay (Berwick *et al*, 1990, p.149). According to Harrington (1999, p.226) the elements of poor-quality costs include “direct poor-quality cost” such as controllable and resultant poor-quality cost and indirect poor-quality cost such as the cost of customer-dissatisfaction, loss-of-reputation and lost opportunity.

Ovretveit (1992, pp.78, 79) divided the cost of poor quality into three categories. These are “the cost for making good, the cost of poor supplies and services, the third is difficult to quantify but the highest cost, that includes bad reputation, lost referrals and corrosive effect of poor qualities on staff”.

Crosby (1979) divided the cost of quality into three types: prevention cost, appraisal cost and failure cost (Al Furs and Al Adeeli, 1995, p.106). Many authors agreed with him such as Al Nummani (1996 a, pp.63-67), McLaughlin and Kaluzny (1994, p.31) and, Beck and Larrabee (1995, p.64).

**Prevention cost:** can be defined as “costs of activities aimed at preventing errors and rework and building quality into the services process”(Borden *et al*, 1994, p.8). At its core is reducing the failure and appraisal costs to the minimum (Kock and Higgs, 1991, p.4). Prevention costs begin in the preparatory stages in hospitals and include all activities related to the prevention of failure such as training, planning, systems, staff awareness raising, determining the needs of customers and quality improvement projects (Kock and Higgs, 1991, p.4; Khuddiar, 1994, p.19).

**Appraisal cost:** usually defined as “the costs associated with measuring, evaluating, or auditing products or services to assure conformance with quality standards and performance requirements” (Beck and Larrabee, 1995, p.64). It includes all activities performed to determine the extent to which a service or process meets standards and the customer needs and expectations, such as “ monitoring, clinical and management audit” (Kock and Higgs, 1991, p.4).

**Failure cost:** can be defined as “the costs required to evaluate, and either correct or replace, products or services not conforming to requirements or customer/user needs” (Campanella, 1990, p4). It includes the most elements of quality costs and is difficult to determine (Khuddiar 1994, p.63). Failure cost includes “internal and external failure cost” that includes not doing the right work first time, which needs



additional resources (Kock and Higgs, 1991, p.4). Internal failure costs include costs associated with the correction of defective services before they reach the external customer, such as “waste, rework, and delays”(Borden *et al*, 1994, p.8). External failure costs include costs incurred when the external customer experiences a defective service (Khuddiar 1994, p.19), such as loss of market share and litigation costs.

The above indicates that there is a direct and strong correlation between TQM and quality costs in the aims of TQM. Whereas the successful implementation of TQM results in reducing the costs of correcting the errors, repetition of work, reducing the total costs of quality particularly in long term increases in productivity. Reducing the costs is also an important element in TQM. Some studies indicate that the quality costs in organisations which did not apply TQM varies between 15% to 50% of the operating costs, and their managers spend between 50% to 80% of their time correcting mistakes, modifying wrong decision-making, or discussing events which were not supposed to happen (Al Khalaf, 1997, p.132). While the organisations which applied TQM could reduce their quality costs to 50% (James and Carman, 1993, p. 188).

#### 5.2.7 TQM Tools

TQM tools provide practical dimensions for problem solving and the continuous improvement process (Al Nummani, 1996 a, p.9). Tools can help “unlock creativity, encourage participation, capture objective data, document processes, measure performance, and analyse causes and effects” (JCAHO, 1992, p.64). According to the National Demonstration Project, these tools are “readily transferable to health care, easy to learn, useful, justify themselves and the effort to learn when, how, and why to use them because they facilitate the process of improvement” (Berwick *et al*, 1990, p.177). Their “visual quality” and their “objectivity” are the source of their power (JCAHO, 1992, p.64).

There are numerous tools, which are used in TQM. According to Al Nummani (1996 a, p.8) there are about 200 tools. According to McLaughlin and Kaluzny (1994, p.74), most of the writings about this issue include information about seven tools. Some list six. But the most famous tools are “flow charts or diagrams, cause-and-

effect diagrams, check sheets, Pareto diagrams or charts, frequency distributions (histograms), run charts, regression analyses and control charts”.

TQM tools can be used for various purposes and every tool can be used in different phases. So every employee must know when he/she shall use the tools that are related to his/her work objectives in line with CQI. JCAHO (1992, p.28) correlated using the tool and the purpose for using it. Hence, statistical tools are used to “measure performance and collect data”. Non-statistical tools are used to “generate ideas, establish meaningful classifications, set priorities, provide direction in decision making, help understand root causes, and help understand processes”. In 1996 JCAHO (pp.1-45) reviewed tools for planning such as “Hoshin planning and critical path”, tools for teams such as “brainstorming, multivoting, selection grids”, tools for data analysis that include “run charts, scatter diagrams and tools for understanding root cause of performance including flowchart, cause and effect diagrams and pareto charts”.

This paragraph will present some of the TQM tools that can be used. The tools covered here are: quality circles, house of quality, brainstorming, flowchart, cause and effect diagrams, check sheet and control charts.

#### **5.2.7.1 Quality Circles**

It is one method of management by participation, depending on the “Ringi Seido” philosophy. It can be defined as autonomous work units, consisting of small teams [3-12 members] with a supervisor, using basic methods for problem solving including statistical and teamwork. The most important of its principles are: volunteer joining, competition for success for all, attention to work problems, mutual confidence and reliance on facts (Al Muji, 1995, pp.4- 7).

#### **5.2.7.2 House of quality**

This is a method that depends on defining the customers’ requirements, definition of the relationship between the customers’ needs/expectations and service specification. These relationships are then translated into defined objectives. It can help to provide the services’ conformance with customers’ needs and expectations (Shareef, 1996, p.201).

#### **5.2.7.3 Brainstorming**

Alice Osborn is known as the mother of the brainstorming tool (Bin Saeed, 1997, p.197). Brainstorming is a “structured group of techniques for generating a list of



ideas about the issue in a short period of time” (Al Sagaf, 1995, p.41), in a “non-threatening environment” (Pressmark, 1990, p.11).

#### **5.2.7.4 Flowchart**

Flowcharts are also known as “process flow diagrams”. They can be defined as a graphic representation of the sequence of steps that are performed in a specific work process (Khuddiar, 1994, p.81), using graphic symbols for tracing the steps of a process from start to end, with explanation of the extent of correlation and dependence among these steps (Bin Saeed, 1997, p.241).

#### **5.2.7.5 Cause and Effect Diagrams**

These diagrams are also known as Ishikawa diagrams in relation to the Japanese pioneer Kaoru Ishikawa who developed this tool, and fishbone diagram because of its shape (Al Bakri, 1996, p.390). It can be defined as a graph “showing a large number of possible causes of a particular outcome, often problems” (JCAHO, 1992, p.38).

#### **5.2.7.6 Check sheet**

Check sheets can be defined as a “form designed to record how many times a given event occurs” (Borden *et al*, 1994, p.156). It collects the data “systematically of various effects” of activities or output, and presents them with their frequency (Shiba *et al*, 1993, p.102). This tool is very useful in hospital environment, especially in the case of clinical procedures.

#### **5.2.7.7 Control Charts**

Walter Shewhart developed this tool in 1920 (Goetsch and Davis, 1994, p.386). Actually it is a step that follows the run charts, as it can be defined as “a run chart with statistically determined upper (upper control limit) and possibly lower (lower control limit) lines drawn on either side of the process average” (Borden *et al*, 1994, p.170). It can show two types of variations: “common cause and special cause variations” (Berwick *et al*, 1990, p.209).

Each tool has its own target, method and instructions for application. These are important, not merely for implementation, but also in selecting the appropriate team and environment for successful implementation.

### **5.3 Application of TQM in Health Services**

TQM could be applied to a variety of departments, services and functions in hospitals, for instance: Doctors, chaplains, nursing service, outpatient clinics,

emergency, physiotherapy, social work, haematologists, numerically controlled machine operators, systems analysts librarians, pharmacies, radiology technicians, pathologists, psychologists, microbiologists, support services, laundry etc (Morgan and Murgatroyd, 1994, p.75). It encompasses all areas looking at medical, nursing, productivity, data processing, planning and material management and grater sensitivity to patient expectations and needs.

TQM may also encompass many other areas within hospitals. Such as enhancing totality and integration concepts among the staff, strengthening team spirit and introducing coordination and coherence between the various services to eliminate complexity and fragmentation (Morgan and Murgatroyd, 1994, p.75). Using TQM tools to improve the performance. Reorganizing the structure of the hospital and introducing changes as suggested by Claus (1991, p.132) suggests that TQM is itself a model for organizational change. The change steps model applied to TQM in health care involves: organization for change, preparing the environment, empowering employees, focusing the environment and engaging the environment. Finally, setting up specific measurable standards as basic indicators for performance and as “a prompt to methodical planning” (Morgan and Murgatroyd, 1994, p.79).

TQM can be used in many services in hospitals such as nursing services. Madkore (1993, p.20) discussed a five-step model and notes that could be undertaken by nursing management team. The model includes “empowering employees by interested in feedback attitudes and behaviours which support quality, commitment of management by top management, trust atmosphere, improving decision making process and teams of solving problems”. Also, in satisfying both external and internal customers by meeting their needs and expectations. Morgan and Murgatroyd (1994, p.77) provided many applications of TQM in hospitals such as in “medical activities, organizational, managerial and administrative matters”. It enhanced quality in legal matters to ensure that all legal requirements are met, to ensure quality such as medical/customer audit, setting standards and clinical outcome requirements and consumer law.

In fact, there is no perfect model or strategy that can be applied in hospitals and meet all of the hospitals' strictures. However some models can be considered such as



the model of North Memorial Infirmary, Kosair Children's hospital and Children Hospital in USA which includes 10 steps: developing a mission, vision, quality policy and corporate goals; management commitment to quality process, organizing for TQM; education and training; customers and their needs; improvement opportunity identification; quality review; recognition and reward, communication and integration of TQM with existing management programmes (Powers, 1988, pp.111-120). This model may be applied in a KSA hospital as its 'American orientation' as the Health Development Council in Makkah, Saudi Arabia (2001, p.1) depends on using standards of JACO and USA system of quality management. However, this model did not mention many elements such as tools, culture and marketing. Also, Nwabueze (2001, pp.674-678) provided many stages to applying TQM in NHS: "identify and adopt a clear vision ' purchase the best quality services for patients; involved the setting up of focus groups to identify gaps services; a new organizational culture; training for quality management and define the priority of NHS. Thus, the TQM programme was established a steering group involves the management of TQM process and development of yearly quality action plans, a quality audit team and working groups to monitor complaints". Moreover, he agreed that the application of TQM in healthcare must include clear purpose, shared values, led from the top, patient and client focused, involving staff, continuous, fact-driven action, organisation-wide. The European Foundation for Quality Management provides a model to improve the quality in public hospitals depending on "self-assessment, continuous improvement, learning and innovation, teamwork and a culture totally focused on the customers" (Jackson, 1999, p.244).

Many researchers and writers present different approaches to the implementation of TQM such as:

Jablonski (1991), Drummond (1992), Juran (1992), Khuddiar (1994). Table 5.3 presents many stages of previous researchers for the implementation of TQM.

Table 5.3  
Different Approaches for TQM Implementation

Jablonski (1991)	Drummond (1992)	Juran (1992)	Khuddiar (1994)
Preparation	Identifying the elements of quality in the organisation	Elucidating how far improvement needed.	Studying the present situation and estimating the requirements
Planning	Identifying the expectations of the consumers	Identifying the basic environment	Analysing data and planning for improvements
Assessment	Creating a good system for provision of services	Identifying the improvement projects	Implementation and pursuing improvement
Implementation	Educating the consumers	Formulating work teams for these projects	Evaluating the implementation and the continuous improvement
Diversification	Providing an efficient supporting system	Providing the work teams with the resources and qualifying them through training	
	Providing feedback about the progress of the implementation programme	Creating a control and supervision system	

Adapted from: Jablonski, 1991, *Implementing Total Quality Management An Overview*, p.7; Drummond, 1992, *The Quality Movement: What Total Quality Management is Really all about*, pp.99-106; Juran, 1992, *Juran on Quality by Design: The New Steps for Planning Quality into Goods and Services*, p.3; Al Hayjan, 1994, "Practical Approach for Implementation of the Concepts of Total Quality Management," *Public Administration*, p.428; Khuddiar, 1994, *Health Care Quality Assurance*, p.72.

Many researchers present different approaches to implementation of TQM. For example, Radovilsky, Gotcher and Slattsveen (1996, p.10) believe that in order to apply TQM "all functions including production, finance, marketing, information systems and purchasing, should apply quality control to improve their output; each part of the company has to focus on meeting customer requirements and expectations the first time and every time; each part of the company must strive to improve continuously and to achieve these aims, the entire workforce must be involved, and employees must be empowered. However, to put TQM into practice a TQM system has common elements including: built-in quality; management commitment; competitive benchmarking; quality control training for all employees; quality at the source; continuous improvement; and statistical process control". This model enables



hospitals in KSA to apply TQM and establishes many elements to achieve quality. Kanji and Baker (1990, p.12) provided a practical approach to applying TQM which included four stages: identification and collecting data about the best areas which impact the best performance and improvement; preparation of details of all activities; management understanding and commitment to the concept, aims and how to apply TQM; scheme for improvement by training, communication and identifying the quality issues; and critical analysis through starting new initiatives with new targets, complete improvement of the process, collecting the information, education and training.

In fact, there is no single model for the implementation of TQM that is agreed upon by all pioneers or researchers or writers (Al Bakri, 1996, p.399). Although there is no single system for the application of TQM, there are some procedures that can be used by the management for the successful implementation of TQM in hospitals. For example, Walshe and Offen (2001, p.256) suggested a “strong and effective clinical leadership to TQM, a strong corporate focus for quality improvement which is best served by a central audit function, quality improvement needs to use resource investments wisely and hospitals need to monitor the process carefully”.

In applying TQM in hospitals the issue of the nature of health services such as calls to provide intangible services and the characteristics of hospitals should be considered as a complex sociotechnical organisation (Hurstani, 1990, p.51). Finally, the difference between public and private hospitals should also be considered. The hospitals of the government sector vary from those of the public sector in terms of the environment surrounding the hospital, the objectives and the targeted market. Government hospitals are less exposed to the forces of supply, demand and competition in comparison with private hospitals; this results in reducing attention to improving quality and performance in the former. Government hospitals are not profit-seeking organisations; rather they are looking for fairness and efficiency in satisfying the requirements of the individuals. Their success or failure is not measured against financial basis. This is contrary to the private sector, which is seeking profit as its basic drive. Finally, governmental hospitals are presenting their services free of charge, while private hospitals are endeavouring to increase revenues (Hurstani, 1990, pp.52).



The implementation of TQM in developing countries is usually carried out with consideration to wide variances in terms of education and culture between the developed and the developing countries. TQM programmes can be modified in accordance with the regulatory and cultural situations in the institutions and organisations in the developing countries, as well as giving consideration to the culture and social status of the country in general (Al Gahttain, 1993, p.37). Moreover, some consideration should be given to the big differences between the private and the public sectors in these countries. These differences vary between countries in relation to the health, economic and political systems in these countries. For example many developing countries -especially in Sub-Saharan Africa- do not have “such policies and many health services are not covered by private health services, especially in the poor rural areas where about 70% of all Africans live” (The World Bank, 1992, pp.414, 415; ). In Saudi Arabia some of these differences are:

- Political factors and government policy have more influence in the public sector while the economic factors usually have more influence in the private sector, MOH manage the general hospitals and the population plays a simple role in this policy, at the same time playing a weak role in controlling the private sector.
- The objective is to provide free health care services to all population in the public sector, while the private sector provides these services for profits (see chapter 2). The patients pay in the private hospitals so they also expect more. The private sector does not necessarily provide health care services that are of a better quality than the public sector, but it always provides hospitality services.
- There is an increase in demand in the public hospitals especially in rural areas as a result of increased charge in the private sector, at the same time most people have no health insurance.
- The financing factors are affecting the public sector as much as the public hospitals are suffering from a decrease in their budgets, private hospitals do not suffer from this factor. Private hospitals are more efficient and use available resources more effectively while providing higher salaries than the public hospitals (AL Mola, 2001, p.105).
- The managerial factors are different in the public and private sector. The private sector is more flexible, suffers less from bureaucracy in management procedures, faster decision-making, quick access to the hospitals and has more interest in marketing orientation and patient satisfaction (Burraie, 1995, p.114).



- Medical technology is usually more advanced in private hospitals, but in Gulf countries it is the same in both public and private hospitals (Melyane, Sofe and Felemban, 1995, p.147).

Al Muji (1995, pp.64-69) believes that the experience of the Hammed Medical Institution in Qatar, which began in 1992, in implementing TQM represents an excellent example of the successful implementation of TQM in the health institutions of developing countries. The implementation had been accomplished through many stages, namely: preparing the environment by means of providing well-trained medical staff and convincing them of the advantages of the implementation, providing an integrated system of medical records and completing the files, planning and implementing the programmes of improving quality through teams of quality improvement (cross functional) and providing them with adequate training so that each member of the team could discuss and elucidate the programme and its objectives to the employees in his department, top management support the idea of improving the quality through the idea of management by participation and organising seminars for the purpose of presenting the results and incentives.

#### **5.4 TQM Relevance to the Public Sector Health Services**

Massey (1999, p.3) notes that TQM although based on the private sector model, was used by the public sector to reduce the bureaucratic approach in favour of the customer driven model. Deming (1982, p.6) leaves no question on the importance of TQM to the public sector service as he notes "In most government services, there is no market to capture. In place of capture of the market, a government agency should deliver economically the service prescribed by law or regulation. The aim should be distinction in service. Continual improvement in government service would earn appreciation of the American public and would hold jobs in the service and help industry to create more jobs". Talbot (1999, pp. 23, 24) notes "all public organisations operate within a framework of governance and policy that is largely externally imposed and face difficulties when measuring the social results and output. These may influence in applying TQM in this sector". The health services in the public sector face many challenges for many reasons such as growing public expectations, a greater consumerist culture, medical advances and demographic changes (Curry and



Sinclair, 2002, p.197), as well as some belief that there is a “chronic waste of resources (Morgan and Murgatroyd, 1994, p.68). In the 1990s in some developed countries such as the USA and European Union a new public sector management paradigm began to emerge, bringing many changes in healthcare systems and expansion of the market function especially in the USA and to privatization to decrease the size of the public sector and to improve its services (Torres and Pina, 2000, p.41). In KSA and also in the low-income countries as Vietnam, there was orientation to health insurance to face the financing challenge in healthcare (Jowett, Contoyannis and Vinh, 2003, p. 333). Audit Commissions have been formed in many countries such as the UK leading to central government control, joined up government and achieving quality public services (Al Ahmady, 2000, p. 420). Thus, TQM become one of the methods of dealing with these challenges in the public sector (Al Hayjan, 1997, p.8).

The question is whether TQM fits into the realities of the world of public sector administration practice in public sector hospitals. Some argue that the historical and environmental contexts within quality and the way TQM initiatives operate differ fundamentally between private and public sector of health care (O’Keeffe and O’Sullivan, 1997, p.293). The private sector seems to have had some success with TQM, and the public sector should follow suit. Emulating the private sector will help the public sector to deal with some of its traditional problems and criticisms. (Radin and Coffee, 1993, p.42). Ehrenberg and Stupak (1994, pp.78, p.79) indicated that TQM can be applied in both the public and private sectors including health services. Although there were many environmental and cultural differences between the public and private sectors, this does not mean that TQM cannot be applied in the public sector, only that it must be applied differentially.

Shoop (1991, p.17) believes that TQM is taking a long time catch on in the public health sector. He provided many reasons: (1) TQM is not a high priority of top management. "Even if TQM is paid lip service at the highest levels, improving the quality of government services is hardly a national priority on the level of, say, deficit reduction", (2) The government deals mostly in services. (3) TQM is not part of the public sector culture. The public sector is not under threat of losing customers and so the incentive to increase quality and improve customer satisfaction is lacking. (4) Incentive is lacking in the public sector. Middle-managers are often the most difficult to convert to TQM because of the perceived loss of power and authority to process



teams. Al Hayjan (1997,pp.97) believes that the public hospitals are characterised by a traditional bureaucratic nature, particularly in developing countries. Hence, they face challenges to be able to adapt to the requirements of continuous change. But these challenges do not prevent the implementation of TQM, but rather limit the scope of quality improvements.

Such conclusions are common among public administration theorists and practitioners who predict the failure of TQM without a fair test in the public sector. Perhaps they feel that anything that succeeded in private industry or was not developed by a public administrator will not work in the public sector (Ehrenberg and Stupak, 1994, p.89).

In spite of Deming's insistence that TQM is quite compatible with the public sector, in the past, and especially in the developing countries, there has not been a widespread movement to apply TQM in the public sector. Perhaps the public sector culture was thought to be incompatible with TQM (Ehrenberg and Stupak, 1994, p.89). Swiss (1992, p. 358) argued that TQM is "strikingly ill suited to the government environment," requiring modification if it is to be useful in this environment. Maybe changes in public sector environment, especially in developed countries, would contribute to preparing the public sector to apply TQM. Such as "focus on improving the process, quality defined by customers, people empowered to make decisions, decisions based on fact; and a long-term commitment to TQM by top management' (Ehrenberg and Stupak, 1994, p.90). Morgan and and Murgatroyd (1994, p.52) have indicated three culture dimensions which may be inappropriate for successful implantation of TQM in public sector "the multiplicity of professional specialisms, the primacy accorded the individual professional transaction and the authority of seniority and status hierarchies". Al Hayjan (1997, pp.97) believes that public hospitals are characterised by their nature of traditional bureaucracy, particularly in the developing countries. Hence, they are facing challenges to be able to adapt to the requirements of continuous change. These challenges are not preventing the implementation of TQM, but are limiting the scope of quality improvements.

It may be useful to underlying the characteristics of public sector in heath organisations (see table No.5.4)



Table 5.4  
Public Sector in Healthcare

Characteristics	
Structure and culture	Decision making process through issue. Specific, multi-disciplinary groups of administrators and autonomous professionals negotiating consensus, process of change often diffuse rather than top-down or bottom-up. Welfare oriented and mainly non-competitive, through they increasingly competes for resources. Reactive rather than proactive.
System	Little experience of TQM and QA except in few areas such as X-ray, Pathology and Medical Engineering. No systems for managerial or financial accountability in medical specialism. Poor information system and technology.
Staff	Most people still from era when welfare and service aspects dominated. Not primarily motivated by profit or efficiency motives, apart from specifically recruited managers, most higher-level staff used to administrative or professional lines of control.
Customer Base	Customers use the services because they have to, not because they want to, little or no freedom of choice for most people.

Sources: Kogan, Henkel, and Spink, M. (1991) *The Evaluation of Total Quality Management Projects in the NHS: Third interim Report to the Department of Health*, p.15.

According to Al Hayjan (1997,pp.97-104) the environment of the public hospital is usually affected by the political system and is subject to the criticism of the media. They are committed to a number of strict rules set by the government that dictate their objectives and customers. There are four sides to the organisational environment of the public hospitals as follows:

- Political environment: most managers in public hospitals prefer conservative persons who are using the bureaucracy method and are willing to be aided by the policies and procedures set by the government. As such, it is difficult to convince managers to introduce new strategies such as TQM. On the other hand, the government's desire to improve the health services may help the hospitals to change the bureaucracy method.
- Economic environment: public hospitals suffer from limited budgets and high costs. Therefore, they feel anxious about change and the implementation of TQM, which may require considerable resources during the first stages of its implementation. On the other hand, limited resources of hospitals may encourage their management to redesign their systems, strategies and processes to improve their situations through implementation of new concepts such as TQM.
- Social environment: includes the values and criteria set by society and directly affect hospital functions. Managers in public hospitals should understand this environment and the extent of its effect on their work, as it may hinder or support the implementation of TQM.



-Technological environment: technological change facilitates the implementation of TQM, as the methods of work of individuals in hospitals change through modern technologies. As well, expectations of continuous improvements in health care have become a reality due to the developments in modern medical technologies.

There are many differences between public and private sector that must be understood when applying TQM and when considering the application of TQM in public sector hospitals. Some of these differences are as follows (note: see more differences in the critiques of TQM in the public sector):

-According to Swiss (1992, p.656) the public sector -including health care sector- faces four major problems when attempting to implement orthodox TQM: “defining the government customer, services vs. products, focusing on inputs and processes and government culture”. While Madkore (1991, p.63) determined three problems “government culture, additional customers do not mean additional revenues, and quality vs. quantity”. Swiss and Roga agreed that public sector culture is one of the problems in applying TQM in hospital. Furthermore, the culture may be more difficult to change because public sector activities are generally older with more ingrained cultural elements (Ehrenberg and Stupak, 1994, p.95). The culture of public sector hospitals has many attributes such as bureaucratic rules, red tape and hierarchy. So, applying TQM in the public health sector needs major changes to the culture of many public-sector organizations, identification and understanding of the culture in this sector, building the vision and TQM implementation plan on the existing culture. Resistance to change is an element of many government hospitals cultures and applying TQM philosophy, like cultural change, is a multi-year process (Ehrenberg and Stupak ,1994, p.83).

-Swiss (1992, p 353) “suggests that the compromise between quality and cost does not work in government”. For example, in the public sector hospitals because the buyers are not the recipients. The buying customers (general taxpayers or government in some developing countries such as KSA) “will often prefer to minimize costs. At the same time, the direct customers (recipients) of such programs may expect a level of quality that is found only at a very high price, because they do not pay the full cost. No balance between costs and features is likely to please both groups” (Rago, 1994, p.63).

-The development measures may be more difficult in the public health sector. (Ehrenberg and Stupak, 1994, p.95) and the external environment is more unpredictable, and in some cases more influential in the public sector.

The Saudi Government governs the health sector by making laws which determine the licenses granted to hospitals, monitoring the performance of health services, determining service fees in private hospitals, and deciding on the locations of government hospitals. The government has a more evident effect on public hospitals. This is reflected in the quality programmes in these hospitals, in terms of the philosophy, planning, objectives and facilities granted to such hospitals. For example, facilities, independence and flexibility implementing quality systems are less than those in the private hospitals. There are many health services who should consider quality programmes in public hospitals in KSA. For example, such activities require sizable material and human resources and their confrontation take years. Only the public sector can shoulder such burdens.

## **5.5 Critiques of TQM**

The in-depth analysis of TQM has produced a number of critiques to the theory and application of the concept. Some academics have rejected TQM because TQM is a management method, which incorporates both 'mechanistic and organismic thought'. On the practical side, Harari (1993, pp.33-36) believes that TQM realises the required results in only 1/5 to 1/3 of the companies who have applied it. Al Ahmady (2001, p.591) indicated that 40% of the accreditation hospitals from JACO in USA that had adopted TQM program had obtained less than satisfactory results. This may be related to the implementation-related problems, resistance to change and short-term thinking and top management focus on short-term strategy and actions (Yasin and Alavi, 1999, p.18). Also in European healthcare a few of success of programmes of TQM, the projects of TQM is success more than for programmes (Ovretveit, 2000, p. 74).

Some critiques related to the some of the pioneers of TQM. Nwabueze and Kanji, (1997, p.265) believe that the pioneers of TQM provided many points such as, Deming's 14 points, the 10 steps of Juran and the 14 steps of Crosby. These are difficult to apply successfully to the needs of a particular organizational culture.



Furthermore, the absence of such contextual factors in the work of the quality gurus serves as a limitation upon the successful implementation of TQM. While Flood (1993, p.20) notes three weaknesses in Deming's philosophy that include the action plan and methodology which are not clearly expressed, suggesting that Deming did not present an easily understood method, moreover he believes that Deming's idea represents too much task without action plan. Deming did not indicate how leadership and motivation could support and maintain TQM program, and Deming's philosophy ignored the political interventions that affect environments.

Relating to Juran's philosophy Nwabueze and Kanji (1997, p.266) indicated that many critics have argued "that Juran's mythology emphasis on management's responsibility for quality fails to get to grips with the extensive literature on motivation, leadership and culture change which is the sustaining foundation for TQM. Additionally, Juran's methods of quality planning, control and improvement are mainly traditional and old-fashioned, failing to deal adequately with the human dimension within organizations, particularly in changing people's attitudes and behaviour, and on the issue of organizational politics". Similarly, Flood (1993, p.22) identified three weaknesses in the Juran trilogy: focusing on management's responsibility for quality does not conform with the thorough literature on motivation, leadership and culture change, setting too low a value upon the role of workers and their initiatives, and finally he believes that Juran's methods are conventional and are not compatible with the cultural and political issues in organizations.

Flood (1993, p.27) also pointed out five weaknesses in Crosby's philosophy: The philosophy is weak and contains dull ideas that do not raise the awareness of problems of implementation of TQM, the suggestion of blaming workers for quality failures, his model is strongly focused on management and objectives and a misunderstanding of the "zero defect" concept. Kogan, Joss and Kenkel, (1991, p.10) stated that many managers in the NHS see "Crosby's 14 steps as overlong and a complicated process designed to achieve relatively simple ends, this is may related to the number of steps and also in relation to the 'tedious' process of specifying suppliers and customers in the internal customer chain".

Some critiques related to definitions and variant schools of TQM. Quality and TQM, mean different things to different people (Wood, 1997, p.182). A large number of definitions of TQM may lead to confusion which is created by the existence of



distinct definitions of TQM (Giroux and Landrry, 1998, p.184). From the psychological dimension, quality is an emotionally charged concept related to personal feeling. As well there were some negative perception of some of TQM's expressions (like "do it right the first time" and "zero defect") as indicators of inflexibility and totalitarianism (Giroux and Landrry, 1998, p.188). Also, variant approaches and schools of TQM which lead to difficulty in grouping and classifying (Dean and Bowen 1994, p.395).

Some critiques related to some principles of TQM. According to Barley and Kunda (1992, p.384) control is important in the TQM management when evaluating the TQM, the implementation is usually accompanied by an increase in control, in fact with a different meaning to achieve the aims. The standpoint of TQM is that every employee must believe in it and support it, this might not necessarily be true, perhaps one can believe in an ideology but not necessarily support it by action. Also the achievement of 'zero defect' is not possible in some services and perhaps many people have difficulty conceptualising this term. (Al Ahmady, 2000, p.412). Some researchers pointed out the harmful effects of TQM approaches on the lives of employees. For example the idea of excellence and doing the right thing the first time, and considering everyone a supplier responsible for customer satisfaction lead to physiological disquiet (Giroux and Landrry, 1998, p.188). According to Schaffer and Thomson (1992, pp. 80-89) TQM links between actions and results, continuous improving and learning, may be "impossible with long-term approaches aimed at improving systems since too many variables influence the results". Also they state that there is also criticism for confusing ends and means, allowing "managers to hide behind an anticipated long-term performance improvement so as to avoid having to explain difficulties encountered and the absence of tangible results". Some authors consider TQM as 'an approach to change'. Change is a process that is difficult to implement because it pertains to values, behaviours and norms of the organization and its employees, the problem is aggravated by the high turnover of labour (Giroux and Landrry, 1998, p.188). The theory can find limited support in management theory and failure to consider the variant interest groups within the organization, social issues and the problem of industrial relations (Hill, 1995, p.40). TQM is an organizational process and involves large-scale culture change and takes time to achieve the expected improvement (Boyne, Gould-Williams, Law and Walker, 2002, p.9). From



viewpoint of the ideological critique, Webb (1995, pp.105-126) provided three critiques: first, although TQM concerns autonomy and worker empowerment, the fact is that its implementation is generally accompanied by an increase in control. Second, TQM is supposed to be a collective effort that strives to attain a common cause, while the concept of an internal customer leads to exploitation based on power. Third, TQM encourages employee participation and involvement, and promises to provide opportunities for their advancement. However, implementation is often carried out in a framework of massive streamlining and a hierarchical structure that reduces chances of advancement.

From the practical side Harari (1993, pp.33-36) provided and discussed many critiques that include: “TQM focuses people’s attention on internal processes rather than on external results, TQM focuses on minimum standards such as zero defect, TQM develops its own cumbersome bureaucracy, TQM delegates quality to quality czars and experts rather than to real people, TQM does not demand radical organizational reform, TQM does not demand changes in management compensation. When quality indices become important determinants of management compensation, then people start taking quality seriously, TQM does not demand entirely new relationships with outside partners, TQM drains entrepreneurship and innovation from corporate culture”. Laza and Wheaton (1990, pp.17-21) did not criticize TQM on theoretical grounds, but for the fact that the wrong implementation makes things go off the right path. They identified seven potential TQM pitfalls: “Oversimplifying and understanding the difficulty of bringing about cultural change, failing to recognize that every company and environment is different, failing to provide sufficient project management and/or lack of management of TQM implementation as a project, conducting mass training before establishing support systems for TQM, overemphasizing TQM’s technical elements at the expense of leadership and management issues, applying TQM tools before needs are determined and direction established, and failing to provide the structure to move TQM to supplier or subcontractor organizations”. There were many obstacles in applying TQM in the health services related to the nature of this service (see problems facing the application of TQM health services in the next section).

In the public sector, Morgan and Murgatroyd (1994, pp.43, 61) conclude that not all TQM concepts, tools and applications can be used in public sector context. The application of TQM in the public sector is just beginning. Therefore, those who are applying it should understand the issues and take a global view of its development. They discussed five major factors that inhibit the effective implementation of TQM in the public sector as follows:

- The nature of TQM inhibits its application to the public sector: TQM had its origins in the manufacturing sector. The public sector is not concerned with products, but with public services that are provided in an environment that is different from that of the market. Quality in services is concerned with enhancing the skills of the staff to meet variant needs. In manufacturing, the products are standardized, while the products of services vary according to the expectations of customers.
- The nature of the public sector is adverse to the reception of TQM applications: The public sector is more resistant to change, as the need for it is less evident. Rewards for managers in this sector are not based on performance, but are paid out of a budget allocation. Also, they are not free to manage as is the case in the private sector. TQM would require a change from the budget allocation to performance criteria in the public sector, as they are politically bound. A successful adoption of TQM in the public sector calls for clarification of the relationship between politics and management.
- The work cultures of the professionals in the public sector are adverse to TQM: There are so many professionals in the organizations of the public sector, whose practices are hindering TQM due to the existence of several specialists, individual characteristics of professionals' dealings and concentrating authority in the hands of senior staff.
- In the public sector the customer is a more problematic concept: the need to serve an external customer in the public sector, does not mean the TQM concept of internal customer, which exists in the private sector, is not valid in the public sector. As the services of the public sector are provided in a monopoly or semi-monopoly context, there is no need to attract or retain customers.
- Public sector is more complicated than manufacturing: It is more difficult to improve service quality without increasing costs in the public sector; hence this hinders the application of TQM due to the existence of different interest groups and budget limits.



Similarity, Drucker (1980, pp.103-106) identified six deadly sins that inhibit applying TQM in the public sector which are “lack of clear performance targets, trying to do too many things at once, solving problems by throwing people at them, lack of an experimental attitude, lack of evaluation so nothing is learned from experience and reluctance to abandon programs”. While Milakovich (1991, pp, 195-198) asserted that improving service quality without increasing costs is more difficult in the public sector than in private sector. Maybe this is because the public organizations have to serve and meet contesting objectives of different interest groups, budget allocation considerations forces public leading politicians to concentrate on short term rewards rather than long term targets. Managers in the public sector are working in a non-competitive environment where rewards are based on performance, there were may limitations of current public management practices such as bureaucracy which is resistant to change and TQM in the public sector is a continuous process of improvement that realises quality and productivity goals without additional resources. (see problems facing application of TQM in health care services).

There is a general belief that the private sector provides better quality than the public sector, However, that is not always the case when quality is defined as “adherence to standards”, (Brugha and Zwi, 1998, p.107) especially in low income countries and developing countries such as KSA. For example, Uplekare and Rangan (1993, pp.332-337) found that in the private sector in India there were 80 different treatment regimes for tuberculosis , most of which were inappropriate, too short and too expensive.

The primary function of the private sector is to make a profit. TQM needs resources and costs and it takes time to improve the quality in the hospitals. In addition, some private hospitals aim to reduce their costs and that may have an effect on increasing the price of these services and providing services that are unnecessary or even harmful (Andaleep, 2000, p.100), and that may have an effect on achieving patient satisfaction which is an important element in TQM. In some Arab countries, such as Saudi Arabia, the private sector in these countries is not in a better position to implement the principles of TQM than the public sector. There is evidence that the quality of the provided care is declining, and that government and professional supervision is absent (The World Bank, 1997, p. 20). Due to the limited government

or professional role, and the restricted ability of patients to evaluate the quality of the provided care, the implementation of the TQM process depends on individual initiatives in the health organization (Al Ahmady, 2000, p. 423).

The private sector is perhaps more focused on patients and considers them as customers. But maybe the patients, especially in developing countries such as KSA, are unable to judge the technical and clinical issues, and instead they may judge some other services such as the comfort aspect of services. Angelopoulou, Kangis and Babis (1998, pp.18, 19) found that patients in the private sector pay attention to elements such as comfort and contextual factors. According to the World Bank (1997, p.22) patients in some Arabic countries had difficulty in evaluating the quality of care of some hospitals of the private sector, and this may lead to expensive and unnecessary services to rich people, while at the same time a low level of quality services and possibly to harmful services for the poor people. In fact all the previous reasons may hinder presentation of services that match or exceed the expectations of the beneficiaries.

Al Ahmady (2000, p. 423), found many of the physicians in the private hospitals in KSA are already working in the public hospitals and that they work for a short time in private hospitals as they are employed on short-term contracts. That may have an effect on the application of TQM in these hospitals and on their training programmes.

The private sector is “far less accountable of the complex social responsibility”. (Bartlett, Hatcher, Johnson and Dixon, 1997, p. 50), while TQM is interested in all internal and external customers. For example, it does not always provide preventative health services for the community (Madkore, 1993, p.57).

In KSA, the public and private hospitals do not provide the best advances in treatment, diagnosis and medicine so the government still sends many Saudi people to other countries for treatment, if the treatment is not available in the KSA.

## **5.6 Problems Facing the Application of TQM in Health Services**

Practically, there are many problems and common errors that cause the failure of the application of TQM, slowing down its progress to success or resulting in little benefit from the TQM programme.

There are common problems and errors that face the implementation of TQM in any arena, such as: Saleem (1993, pp.66-67) did an interview with Morsee and



according to Morsee some of the general problems are as a result of the employees' resistance to change. This is in addition to the unwillingness or inability of some of the employees to work in a team work environment, the middle management and some of the supervisors feel that programmes for improving quality will represent a threat to them and to their authority, and the unfounded belief that the implementation of TQM causes increase in costs and that quality means an increment in costs. While Al Bakri (1996, p.399) divided the general problems into managerial and technical problems.

In addition to the above problems, there were many challenges to TQM in hospitals due to the fact that "complex health care organisations are involved in complex and diverse production processes that involve the specialised interests of many different professional groups and that make it difficult to reliably measure outcomes of care. Furthermore, many of the key producers are physicians who are not employees of the organisation and the ultimate payoff of quality initiatives lies in the ability to improve the core clinical processes associated with patient care. Nevertheless, the vast majority of applications to date have been in functions providing administrative support to patient care activities rather than directly addressing clinical processes themselves".

Shortell *et al* (1995, pp.16-19) divided the obstacles into three classifications that include the "cultural, technical and structural obstacles". According to them, the most important cultural obstacles are: "more focused on the needs of caregivers and professionals than on the needs of external customers, exemplifying bureaucratic cultures that are resistant to employee empowerment, lack of senior management commitment to TQM, leadership styles based on command and control, middle-management resistance and under-involvement of physicians". They identified the most prevalent technical obstacles as: "the lack of sufficiently targeted training and ignorance of their facilitators, lack of data that focus on quality improvement issues, the inherent lack of relationship between cause and effect in many medical areas and misunderstanding the multiple, simultaneous, interdependent steps that are frequently associated with providing medical care". Finally, the most important structural barriers include: "lack of appropriate utilisation of organisation-wide quality improvement steering councils to serve the process, lack of integration of such formally separated functions such as utilisation of review and risk management, lack of alignment of budgeting and planning systems, performance appraisal and reward

systems to support quality improvement work, not making sure that quality improvement data are shared with the board and others at the highest levels of the organisation”.

There are some criticisms of the technocratic and humanistic approaches to quality management in health care. Technocratic model is based on the principles of “the body as a machine; disease is the consequence of the breakdown of the machine; the physician is the master medical mechanic who cures disease and repairs dysfunction; there is a reliance on external diagnosis; the physician relies heavily on technology to diagnose and treat patients; aggressive interventionist approach to treatment and diagnosis; isolation and objectification of the patient; alienation of practitioner from patient, the physician and the patient are separate and distinct entities; authority and responsibility is inherent in the practitioner, not the patient and hierarchical organizational structure of one up, one down” Simkins (1998, pp.1-5).

Technocrats or policy experts are becoming more involved in political process, which helped the development of technocracy theory. Such an involvement has not yet been clearly identified. However, there is a trend that political problems should be solved with reference to technical expertise. Technocrats do not form a class of their own; nonetheless, they are much closer to the influential political elite. One cannot claim that there is a contrast between technocracy and politics, absolutely the contrary; politics seek technical assistance to justify change of policy. On the other hand, among the critique of technocracy is that it claims that political problems are not scientifically identified and they occur because of ignoring the technical advice of experts. The point that could be made here is that possessing policy technical or expertise knowledge is not of significant issue, what counts is the use and implementation of them in policy process. To sum up, technical knowledge and expert input are of significant influence in policy formulating process, however, translating such resources remains the state decision (Kiernan, 2000, p. 89).

Technology is considered as a source of power in the technocratic approach and an important element in quality. The problem is that some people are of the opinion that technologies are neutral tools that are totally under the control of human beings. However, the reality is that, once developed, each device has a unique set of features that basically determine how it will be used. On the other hand, some people believe



that new innovations and technologies become an independent creature and that you cannot alter the changes related to it (Johnson, 2000, p.97). According to Davis-Floyd and Dumit (1998 p.54), the hospital has become a highly sophisticated technological factory in which quality is measured by the number of tools that can be employed by those working with them. For example, many believe that safe pregnancy and birth are impossible without the availability of ultrasound and epidural anaesthesia. Tenbensel, T. (2000, p.437) notes that “technocratic prioritisation undermines the usefulness of specialist expertise and lay experience alike”

Technocratic approaches can be represented by a straight line as it clearly defines the principles and processes, but it focuses on physicians while quality focuses on all customers especially patients. The power in health organisations moves from physicians towards the corporate firms. Also the technocratic approach is not just concerned with scientific objectives but also with supporting social and political objectives (Belkin, 1996, p.509). Also, some problems in health care relate to many areas of practice which have inadequate or no scientific basis (see 5.2.4.6).

There is a “technocratic” premise: “health care can be rationally allocated if it can be measured through appropriate technologies of measurements (Frankford, 1994, p.647). But one of the problems is that it is not easy to measure the quality of health services. Fetter, Thompson and Mills (1976, p. 50) conceived the hospital to be a “multiproduct firm in which the processes of production and treatment are often inefficient and ineffective, respectively”. According to them irrationality stems from the fact that the language of health care professionals consists of diagnosis, prognosis, and treatment, while political administrators speak only the language of cost. Finally, the problem related to the nature of clinical practice. One of the objectives of the improvement process is to apply a unified method for performing operations in order to eliminate deviations that limit the quality of outcomes, customer satisfaction, and the efficiency of the operation. This may be applicable in some activities of the health organizations, but it is difficult to standardise the clinical practices and procedures (Al Ahmady, 2000, p. 425). The difficulty maybe related to the differences in clinical practices (James, 1994, p.19), deference elements influencing outcome and differences in patients and diseases such as condition, individual, intervention and context (Madkore, 1991, p.150). There are

also continuous changes in knowledge and technology in the clinical field, there is no scientific evidence of the efficiency of many medical procedures, there are no mechanisms for the realisation of a consensus of opinion among specialists in many clinical procedures, or the independence of medical care decisions and its reliance on personal discretion (Al Ahmady, 2000, pp. 425, 426).

On other hand, some of the principles of the humanistic model are “the individual is valued as unique and worthy; the person is viewed as an organism, not a machine; the whole person should always be considered; the needs of the individual and the needs of the institution should be balanced; information and decision making are shared between practitioner and patient; empathetic communication is essential to healing; there is a relationship that is necessary for healing, a partnership between the client/patient and the practitioner; there is humanization in the midst of highly developed technology”.

According to Kruger (1998, p. 293), “The humanistic” dimension of TQM has been overlooked by organisations preoccupied with technological quality tools and control systems at the expense of the human dimension. There are, thus, the relatively uncharted waters. These waters are uncharted because it seems to be much easier to companies to deal with certainties of quality systems and work processes than the softer side of TQM.” In today’s highly competitive business world where many firms are struggling to survive, business organisations cannot afford to leave any company resources lying idle. Management needs to make use of all resources – technical and human. Without the total commitment of employees to quality, the work organisation will have great difficulties in surviving the business world. Kruger (1998, p. 293) concluded, “Only the humanistic orientation of TQM towards organisational analysis will allow successful TQM in actual practice.”

Badham, Garrety and Kirsch (2001, p. 61) shows that a complex constellation of techniques, users of the techniques and local entrepreneurs shape the nature and impact of humanistic technology. Badham *et al* argue, “The domination of many human centred design projects by socially minded engineers, agronomists and work scientists and union activists has led to the dominance of technocratic and humanistic



rhetoric around such projects, and neglect of the complex politics of making do in context”.

(Al Ahmady, 2000, p.421) states that there are two distinct lines of authority which characterize health organizations, the first is administrative and the second is medical. This duality has entailed the presence of a barrier between the medical and the administrative facets, hence limiting the success of the improvement process or confining it only to some aspects of activities. In addition, the administration does not control the strategic aspects of the activities of such organizations, especially those pertaining to medical care. As well, the centre of the activities of health organizations is the health and life of people; this represents a threat to the rationality of decision making.

Shortell (1995, pp.11, 12) emphasized that culture might be the most important factor hindering TQM efforts in health organizations. Whereas such organizations, in his opinion, consider the requirements of care provider (the doctor) more than the needs of the beneficiary (the patient). He added that the mode of authority in such organizations does not allow the employees to participate by offering opinions or suggestions on changing the method of doing work. There is a view among professionals, especially among physicians, that “TQM is really just another management ploy to erode our professional independence’ and that may be related to the traditional autonomy of the professionals (Morgan and Murgatroyd, 1994, pp.73, 74). In addition, there are various powerful subcultures (e.g. physicians' subculture), each has its own perspective of what quality should be, and how the work should be done (Zabbada, Asubonteng and Munchus, 1998, p.57). Hackett, Liford and Jordan (1999, pp. 89-99) believe that in clinical governance the culture and behavioural barriers and interaction between culture power and leadership are one of the obstacles in TQM.

Also other categories of employees in health organizations have authority and independence in decision-making, and there are cultural partitions between categories of the employees. In some Arab countries there is a variance in cultures due to their different nationalities, traditions, values and languages beside the differences in their academic and occupational backgrounds (Al Ahmady, 2000, p. 423).

Because of the prevailing culture that protects independence and enhances traditional partitions as a result of these variances in ancillary cultures, it is difficult to establish a comprehensive framework for the improvement process that relies on teamwork, mutual trust, and freedom of expression and preparedness to accept change.

Developing countries, especially Arab countries, suffer from problems such as: the poor level of management, the employees' lack of basic training and education and importing the technology (Saleem, 1993, p.67). Also, there are some common problems in monitoring activities, such as collecting data that exceed the actual needs, inexact and incomplete data, inefficiency of analysis and conclusion and not using the data in design making (Khuddiar, 1994, p.35).

Focusing on customers in health organizations faces a number of obstacles, such as the resistance of the care provider (particularly physicians) as they believe that the "intervention of the patient will hinder its progress and it is difficult for them to understand and evaluate the medical care especially in developing countries. Furthermore, the numerous opinions about the concept of the quality of care are increasing the difficulty of measuring it" (Zabbada *et al* 1998, p.62). Moreover, the consumers are powerless to alter health-care providers' behaviour through market transactions, as they may not have enough information necessary to judge the quality, utility and safety of healthcare services, also they do not have complete freedom to choose (Zabbada *et al*, 1998, p.65).

Due to the variant categories of customers in health organizations, concepts of quality are numerous; hence it is difficult to counterbalance the requirements of these categories (Plsek, 1997, p. 41). On the other hand it is difficult to measure the expectations, needs and opinions of the care they received. Nelson and Niederberger (1990, p.412) indicate the low degree of trust in the objectiveness of investigating the opinions of customers in health organizations, this is due to the following reasons: patients have a lack of information necessary for evaluation of the technical capabilities of care providers. As well, patients' psychological state may limit their objectivity in good judgment, patients are affected by non-medical factors, such as the method of personal treatment they receive from the care providers, patients may be hesitant in expressing their real feelings and may fail to recall all details of service provision.



**Organisational learning and learning organisation.** Education, training and participation are factors that are critical in such a process in hospitals. The term learning has been used as “coping, adapting, planning, developing and changing” (Morgan, 2001, p.4). There are differences between learning organisation and organisational learning. Tsang (1997, pp.74-75) states that “organisational learning is a concept used to describe certain types of activity that take place in an organisation while learning organisational refers to particular type of organization in and of itself”.

Organisational learning is both “activity and process orientation and includes leadership commitment, individual, collective, structure and socio-cultural” (DeBurca, 2000, p.458). Dixon (1994, p. 20) provide the organisational learning cycle that include “generate, integrate, interpret and act”.

The learning organisation is “an organisation skilled at creating, acquiring and transferring knowledge and modifying its behaviour to reflect new knowledge and insights” (Garvin, 1993, p.80). “It is strategically integrated with organisational couture, system, individuals work in an environment that encourage them to learn how to learn rather than promoting skills and knowledge” ( West and Burnes, 2000, p. 1239).

Garvin (1993, p. 78) states that a learning organisation is a culture of continuous learning, improvement, and analysis, monitors development and aligns the learning process with improvement and innovation and can provide new knowledge creation, developing skills related to the hospitals’ own activities and behaviour. It can develop the ability of the hospitals to meet the new competitive environment, by developing and changing the process itself rather than being forced to change by outside force (Belohlav, 1996, p.12).

On the practical side, learning organisations are “ skilled at range of activities that enable them to develop and integrate their learning” (West and Burnes, 2000, p.1239) that includes (West and Burnes, 2000, pp.1239- 1240):

- systematic problem solving (including much quality realising as it focuses on transformation in management and organisation activities;
- Experimentation actively seeking and testing new knowledge and learning from mistakes;
- Drawing upon memory and past experiences
- Learning from and with others

- Communicating effectively within and beyond the organisation; and
- Systems thinking and developing shared ideas of the current organizational position.

However it needs to change the traditional structures, process, continuous improvement, and develop facilities. Bloor ( 1999, p.168) states that the learning organisation should have a structure that emphasises “system thinking, cross-functional problem-solving team, a spirit of flexibility and experimentation, autonomy in decision-making, a shared vision for and focus quality, and customer service”.

A learning organisation is a logical progression from the TQM approach of involving all stockholders, particularly employees, in the quality process. A learning system is different from TQM in that it relies less on measuring the process or involving staff in the learning and methods. However there are similarities in that all employees are involved in TQM. Garvin (1993, p. 78) argues that “the conditions for an effective learning organisation are those often associated with TQM programme. Although the learning organisation include more than TQM there is a clear philosophical link between them”.

## 5.7 Conclusion

There are many usages of TQM in health services, there is no one system, method or programme for the implementation of TQM in all hospitals. However, there are many elements for this implementation that include leadership commitment, customer satisfaction, focus on processes, cultural environment, human resources, containing the cost and usage of the TQM tools. TQM could be applied in a variety of departments, services and functions in hospitals and may also encompass many areas within hospitals. There are many models and general recommendations that can be considered for the successful implementation of TQM in hospitals. In applying TQM in the public sector it is useful to know how it can work in public sector hospitals, what are the characteristics, the elements and the challenges that have an effect on applying TQM in public sector of hospitals and what are the differences between the public and private sectors. This chapter also includes the theory and practical side criticism of TQM and the problems of applying TQM.



The field study in the following chapters aims to clarify the concepts of quality, the characteristics of quality system and the definition and importance of TQM. Also it includes the hypotheses related to standards and indicators of quality, plans of quality management, the elements of TQM.

## **CHAPTER 6**

### **METHODOLOGY**

#### **6.0 Introduction**

This chapter describes how the issues discussed are to be explored in this research. The research methodology includes three stages:

- **Stage one:** The theoretical study was based on using secondary sources related to the subject matter of the research including books, academic journals, symposiums, statistics, bulletins, and governmental publications. A comprehensive review of all the literature on the health sector, quality and TQM in the Saudi healthcare system was undertaken to establish the existing status of TQM activities in the healthcare sector. This is presented in chapters 1-5.
- **Stage two:** The pilot study used the survey approach, by using a questionnaire. Two questionnaires were designed; the first one dealt with the employees and the second dealt with hospital patients. The aim of the pilot study was to undertake an exploratory study on the subject of the research as well as its objectives and hypotheses.
- **Stage three:** The main study included a re-assessment of the literature survey review and the pilot study in order to re-determine the main points of the research and clarify the main questions and re-design the questionnaires.

This chapter includes surveys, qualitative and quantitative research methodology, interview methods, details on how the questionnaires were designed and why, samples, distribution of the questionnaires, quantitative analysis methods which have been applied to test the hypotheses and achieve the objectives of the research, the pilot study (how the pilot exploratory research was carried out in Jeddah City), limitations of the research and details regarding reliability and validity. In addition, before analyzing data many points will be discussed such as the plan of execution, preparing data for analysis, large effects and statistical power, development of scales, aggregate variables, transformation and recode data.

#### **6.1 Surveys**

Often the researcher starts their study by outlining the questions to which answers need to be found. This is then followed by a decision on the appropriate data



collection techniques. Among the popularly used data techniques are interviews and questionnaires (Churchill, 1999, p. 213). In some cases both interviews and survey questionnaires are used to complement each other. The decision on whether interviews or questionnaires are used, the format and delivery of the questioning mechanism depends on several factors. These factors include population size, age of the people, whether or not the questions to be asked are simple and brief or if they need a significant amount of careful thought (Abu-Chaar, 1997, p. 124).

The respondents in this study are hospitalised (in the case of patients), with some of the respondents being hospitalised children who may not be in a position to engage in in-depth analysis of an issue, even with the help and guidance of the parents. The study needs to collect information about the same variables from a large number of patients and employees and needs to use statistical techniques in data analysis. These reasons, together with those to be detailed below led to the decision that a structured questionnaire would be used as the main tool to collect the data and that the analysis would be done using quantitative techniques.

As outlined in the previous paragraph, several other reasons contributed to the decision to use the questionnaire. “Questionnaires are frequently used in surveys” (Vaus, 2002, p.172) and there is a vast amount of literature on surveys as a method of research in both business and academic settings (Bradburn and Sudman, 1988, p.2). In general surveys are broad in nature and they focus on scope rather than depth, making surveys well suited for collecting a lot of information of a cross section nature. In this way, surveys can be used to determine the status of a given phenomena. According to McDaniel and Gates (1996, p.166) surveys are also “flexible, making them a valuable research tool”. These surveys can be used to generate knowledge by establishing patterns of responses, which may help to elucidate the relationship between constructs. In general, surveys are conducted to gather data at a specific point in time, probably describing an existing set of conditions. Surveys have also been widely used in business field management research in particular and in investigations on consumer preferences as well as being a key feature of product development (Saunders, Lewis and Thornhill, 2000, p.93). McDaniel and Gates (1996, p.167) summarise the reasons for the popularity of surveys as, “the need to



know why, who and how”. All these are consistent with the nature of the proposed study.

There are many different types of surveys such as descriptive, explanatory and content (Vaus, 2002, p.173) and in this study the researcher try to answer two main questions about quality and TQM. What is going on (descriptive research) and why it is going on (explanatory research).

### 6.2 Qualitative versus Quantitative Research Methodology

The research methodology can be described to be on a continuum with one extreme end being qualitative research and the other extreme end being quantitative research. Quantitative research approaches are grounded by beliefs that humans are composite of many body systems that can be objectively measured ‘one at a time or in combination’, while the qualitative approach focuses on human experience in a naturalistic setting, social process and individual perceptions and understanding (Abu-Chaar, 1997, p. 30; Cassell and Symon, 1994, p.2). Many authors provide a detailed analysis of the differences between quantitative and qualitative research approaches. The crucial differences are summarised here so as to provide a background as to why the quantitative approach is to be selected as the dominant approach for this study (see table 6.1).

Table 6.1

**Distinctions between Quantitative and Qualitative Research Approaches**

Quantitative	Qualitative
The truth is the objective reality that can be measured by the researcher	The truth is a subjective experience of reality as perceived by the participants and shaped by the researcher
Quantitative data: collection is extensive, based on meanings derived from numbers, collection results in numerical and standardised data and analysis conducted through the use of diagrams and statistics	Qualitative data: collection is intensive, based on meanings expressed through words, collection results in non-standardised data requiring an analysis conducted through the use of conceptualization.
Questionnaires are administered in one setting	The researcher conducts interviews and participant or non participant observation in the environments where the participants usually spend most of their time
Focus on facts and/or reasons of social events	Focus on understanding respondent’s point of view
Particularistic and analytical	Holistic perspective
Generally, deductive analysis is used, generating numerical summary that enables the researcher to reject or accept the hypothesis	Inductive analysis is used leading to narrative summary, creating a description of human experience

Adapted from: Saunders, Lewis and Thornhill, 2000, *Research Methods for Business Students*, p.381; Ghauri, Gronhaug, and Kristianslund (1995) *Research Methods in Business Studies: A Practical Guide*, p.84; McDaniel and Gates (1996) *Contemporary Marketing Research*. Minneapolis, p.125.



Given the fact that this study sets out to test hypotheses on quality and TQM in Jeddah Hospitals and the testing of the hypotheses using quantitative data, it is therefore deemed more appropriate to adopt the quantitative research approach. It is also appropriate because a quantitative research approach focuses on “measuring the relationship between variables systematically and statistically” (Cassell and Symon, 1994, p.2). This allows respondents to identify factors that they see as significant and that can be explored further on a larger scale using structured questionnaires to test the identified variables. Also, this study aimed at collecting extensive data – from approximately 345 patients and 450 employees. Also, in the case of patients, qualitative interviews could take too long and their health condition could render them unable to talk at length. The questionnaire allowed them time to complete it at their pace. Finally, it could be quite difficult to get permission to talk to junior staff like nurses for the length of time typically required for an interview (normally an hour or more.) It would be a Herculean task to do this using qualitative methods, hence the use of a quantitative approach. However, while the approach will be predominantly quantitative, qualitative interviews will be partly used during exploratory study and in questionnaire design, to improve on hypotheses formulation and to clarify and support some of the results.

### **6.3 Interview Method:**

An interview can be defined as “ a purposeful discussion between two or more people” (Saunders *et al*, 2000, p.242). Although interviews were not the major tool, they were used to some extent in the clarification of TQM/QM by quality management departmental heads and by the researcher during a hospital visit in gathering the general attitudes in the hospital regarding TQM/QM. It is therefore appropriate that interviews be discussed in this context.

As stated before, this survey made use of interviews in a small but effective way. Interviews are used twice. In both cases these interviews were with quality departmental heads using unstructured interviews which “explore in depth a general area” and structured interviews which “use a questionnaire based on a predetermined and standardised and identical set of questions” (Saunders *et al*, 2000, p.242). The first interviews were held at the initial stages of the research (unstructured interviews)

when the researcher interviewed the respondents to explain the subject of the study, to explore their perceptions, views about the application of quality and TQM in their hospitals and their suggestions about the questionnaires of the pilot and the main study. This aimed to collect information about the subject of the study and to develop the questionnaires. The second (structured interviews) aimed to clarify and support some of the results. It included five questions about standards and indicators, the quality system, TQM specialists, the specialists of the TQM manager and the hospital executive and about quality costs in hospitals (see appendix 3.3). The researcher aimed to gain the confidence of these departmental managers prior to contacting the patients and employees with the view of distributing questionnaires to them. At this stage the researcher also made subjective judgement on the methodology and administrative techniques necessary to conduct the research in a way that was not influenced by the departmental heads. The researcher also had the opportunity to visit the hospital wards and familiarise herself with the settings. The heads of quality departments were interviewed for many reasons: firstly to get their confidence and authority to do the research in the hospitals and secondly, to get clarity on the questions that were to be asked in the questionnaire since these head of departments had a technical understanding of QM/TQM and their co-operation was crucial to the study. This would normally raise the credibility and reliability of the responses. Also the interaction during the interview offered the interviewer the opportunity to clarify questions in response to the interviewee. On the other hand the interviewee could also immediately clarify questions if the ones first provided were inadequate/inefficient, lacked clarity, relevance or precision. According to Marshall and Rossman (1989, p.82) the advantages of interviews include the allowance for large amounts of data being collected quickly about a wide variety of information.

#### **6.4 The Questionnaire**

The definition of a questionnaire depends on the method of use, in this study the researcher uses the definition of questionnaire as “a set of questions for respondents to complete themselves”(Hall and Hall, 1996, p.98). “The main purpose of questionnaire research is to obtain information that can not be easily observed or that is not already available in written or computerised form. Evidence from the questionnaire survey is then used for one or more of the following purposes: description, explanation or hypothesis testing. The types of information sought when



surveying individuals or objects, such as firms, usually includes evidence on demographic and socio-economic variables. In addition, depending on the study, evidence may be sought on opinions or beliefs related to behaviors, experiences, activities and attitudes” (Remenyi, Williams, Money, and Swartz, 1998, p.150).

This study uses the questionnaire as the dominant tool for collecting pilot survey information and also for the main study. The main reasons for this are:

- Many researchers have used a questionnaire survey in TQM and patient satisfaction studies. In TQM such as Badri (1994), Bin Saeed (1994) and Al Khalifa and Aspinwall (2000, p.196). In patient satisfaction such as Baron-Eple, Dushenat, and Friedman (2001, p.318) Al Hamad and Al Shouaib (1991), Al Khatteeb, (1987 a). Keeping in line with these studies the researcher has used a similar approach. Two questionnaires have been distributed, the first targeting the hospital patients, the second targeting the hospital employees.

- The issues relating to the bulk of the key hypotheses were obtained from exploratory research into existing literature. The most important aspect of this study at this stage was to gather information on patterns, trends in quality and TQM in health services, and the relevant contribution of these to the subject of study. This is largely due to the lack of information and literature on these issues in Saudi Arabia (see chapter 1 and 2). The indications were that factors such as access to patients/employees, the response rate and the identification of the issues that were considered by Saudis as more relevant were more important than trying to obtain in-depth analysis of the problems to formulate theory. This was about testing theory, not formulating theory. Because the researcher is more interested in collecting information about knowledge, beliefs and feelings, the questionnaire is considered as the most appropriate tool. As such the questionnaire was the more appropriate mode of data collection in comparison to interviews. However, interviews were used to complement the questionnaire as suggested by Grey, Cameron and Thurber (1991, p. 144).

- Limited time and money are a factor when using questionnaires but they can provide a more diverse and larger sample than can be obtained by interviews (Hall and Hall, 1996, p.100). For this study a large sample was needed because quantitative comparison analysis needed to be adequate for statistical analysis in the situation where there were many groups to be compared. For example, employees



were categorised into four groups – technical staff, nurses, doctors and others. Similarly with hospitals, where there were nine hospitals to be compared.

-“Questionnaires can be used for descriptive and explanatory research, as undertaken using attitude and organisational practices in descriptive research, examine and explain relationship between variables in explanatory research” (Saunders *et al*, 2000, p.279). In this study the how, which and why, with regard to data collection, were more important compared to the theory formulation because of the unusually high lack of knowledge on data collection, such as response rates of the various methods for data collection.

- As is the case for the main questionnaire, interviews would have taken a long time. There were genuine practical limitations with a cultural and cost background. Some Saudi men would not agree to talk alone to a woman for more than a few minutes (due to their culture). The researcher, being a female would have needed at least two male counterparts to interview a man. The logistics of this were difficult, and so were the prohibitive costs and time constraints. The counter argument to the above is that telephone interviews could have been used. However, given the nature of the respondents (admitted patients), the logistical problems would have been immense. Not every patient had a phone by his/her bed. Speaking over the phone would also compromise the anonymity of the responses.

- The self-completed questionnaire also allows the respondent sample time to think about their answers (Hall and Hall, 1996, p.100), which was an important consideration for patients in particular. They may not have felt well enough and may have wished to take a longer period of time in order to answer their questions.

- With a self completed questionnaire it is possible to include a large number of subjects as well as subjects in more diverse locations than is practical with the interview (Burns, 2000, p.581).

- Given that questionnaires are a cross sectional study, it is important that data be collected as close to each other (time wise) as is possible to reduce errors from people being measured at different times. There could be a change of management or policy and attitudes can change quickly. Also, there is greater uniformity compared to interviews.

- Questionnaires allow complete anonymity, a crucial requirement in a hospital setting and among the Saudis as part of the culture in general. That increases the opportunity to give correct and reliable information from responses.



To summarise, this study is about testing hypotheses, not about answering them, hence the more structured the questionnaire (and the more uniform the instruction) the more appropriate it is considered to be.

On the other hand, there were many disadvantages to using the self-completion questionnaire that was used in this study. The main disadvantage was that “the reliability and validity of data collected depend on respondents’ memories and forthrightness” (Lewis-Beck, 1994, p.2) and the response rates were generally lower than through interviews (Hall and Hall, 1996, p.100).

### **Questionnaire design – theoretical and practical considerations.**

Many considerations need to be taken into account when designing a questionnaire, among which is the point of how the questions attempt to answer the hypotheses and whether these questions can be analysed statistically. Some important considerations pertaining to this are discussed here.

In designing the questionnaire, attention was paid to the fact that the initial and final stages of the survey were not independent; all other facilities necessary for successful analysis were taken into account as suggested by Cohen and Manion (1994, p.84). According to Cohen and Manion (1994, p.85) “Three prerequisites to the design of any survey are the specification of the exact purpose of the inquiry, the population on which it is to be focused and the resources that are available”.

The authors also argue that the best starting point of any design is to be found in the aim or purpose that the survey is to fill; to produce a satisfactory result the designing process must be guided by specific purposes towards definitive goals and objectives.

The exact purpose of the inquiry for this study is outlined in the form of several hypotheses outlined in Chapter 1. The population (to be detailed later on sampling procedure) is divided into – hospitalised patients and employees. Like most studies, resources in the form of time and money are somewhat limiting, but not restrictive of a credible study.

During the very early part of the study it became apparent that it was necessary to design a detailed, precise and comprehensive questionnaire with the objective of extracting maximum amount of both qualitative and quantitative data. Hence a thorough and systematic procedure of designing the questionnaire was used in order to optimise the structure and conduct of the research. This process of designing the research went through several phases.

First, “the need to review the literature and discuss the ideas with interested parties” (Saunders *et al*, 2000, p.284). In this study from the two sets of exploratory research (literature search and field/empirical pilot study) questions were assembled. These questions were aimed at answering the main objectives as spelt out in the hypotheses to be tested. The information was used to determine the compatibility and suitability of the questions that were analysed to achieve the objectives.

Secondly, several questionnaires from quality, patients satisfaction, TQM (such as questionnaires in studies in chapter 1) and different areas were examined with the aim of capturing general guidelines in questionnaire design and the type of questions which when answered would be easy to identify for analysis and to develop their own questions (Saunders *et al*, 2000, p.284).

Thirdly, the main questions of the study were classified into sections that represented specific areas addressing important issues (including the two areas; quality and TQM). As mentioned before, these questions were extracted from literature and enriched by exploratory research findings.

The fourth point determines the type of question. Most types include open and closed questions and there are advantages and disadvantages to both types (Vaus, 2002, p.86). The questionnaires had three kinds of questions, open (e.g. q5 of general information in patients’ questionnaire), closed (e.g. q2 of basic information in patients’ questionnaire), and close-ended (e.g. q1 of basic information in patients’ questionnaire). Open questions were used to minimise the number (Vaus, 2002, p.175) because it is difficult to analyse as became clear from some questions in the pilot study. The closed questions allowed uniformity and the researcher expected defined answers for the response (e.g.: the respondent had to choose). While the closed-ended questions defined answers for the response, the respondents were given the chance to explain the opinion, add some information not asked by the researcher and mention Saudi environmental factors that were not mentioned in textbooks



(Arayba, Dahmach, Al Hassan, Abud- Al Lah and Aboa-Jabara, 1981,p.56). Sometimes closed questions are referred to as closed-ended questions. In general closed and close-ended questions were used because they are typically used in quantitative studies (Remenyi, *et al*, 1998, p.152) and have many advantages such as being quicker and cheaper to use and analyse and they permit comparability between answers (Arayba *et al*, 1981, p.56).

Measurements are nominal and ordinal in this study. The most commonly used scale procedure is the Likert scales (Hussey and Hussey, 1997, p.170; Saunders *et al*, 2000, p.295). This research used Likert type scales, where opinions were described by the phrases 'strongly disagree' to strongly agree'. The typical Likert scales consist of 4 to 40 items and the numbers allocated to the attitude scale range from 1 to 10 in general (Lewis-Beck, 1994, p. 71). For this study, the number of items per construct varied within the confines just described and the number of points on the scale, 1 (e.g. strongly disagree) to 5 (strongly disagree), were treated as a continuous variable.

The choice of the number of points on the rating scale and whether to use odd or even numbers is an unsettled issue in management research. The literature does not provide certain rules on the choice of the number of points on the rating scale. According to Arayba *et al*, (1981, p.133) the number of points depends on the nature of the study, in general rating scales of points ranging from 1 to 9 points have been used in most surveys. Current research shows some tendency towards using the 7-point scale. The rationale for using this 7-point scale division is that this division allows for wider dispersion of the result that raises the chances of obtaining significant differences (Arayba *et al*, 1981, p.133). However, given the type of respondent in this study, particularly hospitalised patients, the 5-point scale, was intuitively easier for the respondents to adopt. According to Saunders *et al*, (2000, p.295) 4 or 5-points have been used widely.

Also, there are many studies in service quality that have used this 5-point scale, (Moorman, Deshpande and Zaltman, 1993, p.85). For example many researchers have used different scales for measurement of patient satisfaction and TQM elements. For patient satisfaction, some of them used a 5- point construct with grades from excellent to poor as Ware and Hays, while Woodside *et al* used a range from very dissatisfied to very satisfied (Taylor, 1994, p.225). Also Al Hamad and Al Shouaib (1991, pp.17-29) used a 5-point scale to gauge the opinion of patient satisfaction. For



TQM elements many researchers have used 5-point e.g. Al Khalifa and Aspinwall (2000, p.197), Bin Saeed (1994, pp. 35-37), Badri (1994, pp.380-382). To keep in line with these previous studies, the researcher mainly used a 5-point Likert scale, with '1' indicating 'strongly disagree' or 'very poor' and '5' indicating 'strongly agree' or 'excellent' in most of the questions.

Another important consideration is that of aggregating data (multiple items added to make one mean score). The advantages of using the aggregated data were that it enabled the hospitals to have a bigger picture without having to read a massive amount of information. The beauty of an aggregate score is that where there is a low aggregate score, the hospitals have the option to examine the individual items of the scale that has been aggregated, check the most problematic item(s) and take corrective measures.

With regard to choosing odd or even numbers it has been argued by some that using odd numbers gives the scope for a mid point from which two distinct sizes can be created – those in agreement (4 and 5 for this scale) and those in disagreement (1 and 2) creating two distinct categories as 3 would be treated as neutral (Oppenheim, 1992, p.197). This mid point also allows neutrality as opposed to an even number scale where the respondent is 'forced' into either of the categories. This study wanted those who were neutral to have the opportunity to express their neutrality. This is even more so in the case of patients who may not have fully understood the requirements of the question. Hence the adoption of the odd point number scale.

Consideration of suggestions in designing the questions such as: Using clear words and terms that are likely to be understood by respondents, (Saunders *et al*, 2000, pp.291, 292) and be shortened, have the same meaning for all respondents, must have 'relevance' to the issues of quality and TQM and 'exhaustiveness', interest in 'reliability and validity' (such as the same question with a different word in a different place) (Vaus, 2002, pp.175, 176).

Two questionnaires were designed to collect the data in both the main study and the pilot study. The first questionnaire dealt with the employees, and focused on quality and TQM in the hospitals. The second questionnaire dealt with the in-patients in the hospitals. It aimed to get information from patients about the quality of services in the hospitals and their satisfaction level.



Before starting the main study, a small number of the questionnaires were distributed to the sample in order to test and modify it, as the pilot test can help to refine the questionnaire to remove the problems in answering questions and in recording the data (Saunders *et al*, 2000, p.351). Ten questionnaires were distributed to the patients and employees. The questionnaires were tested and small modifications were made to some of the questions to make the questionnaires easier to understand for employees and patients.

Both questionnaires included general and basic information as follows:

**Section 1: General Information**

The questionnaire included questions in order to find out general information from respondents. In this study the patient questionnaire included demographic information about patients and other questions relating to quality. The employees’ questionnaire included general information about employees. See table No. 6.2

Table No 6.2  
**General Information about Patients and Employees**

Pilot study	Main study	Why changes
<b>General information in the patient questionnaire:</b> Consisted of only 4 questions -the name of the hospital, sex, age, and education level.	Consisted of 10 questions. The additional questions include nationality, income, the way that patients were hospitalised in the hospitals, the reasons behind hospitalisation, the health services provided to the patients and the number of times the patients were hospitalised.	Literature review, previous studies and results of the pilot study showed that there was a need to add other demographic factors relating to the patients and other general questions in order to determine their effects on the patients’ level of satisfaction.
<b>General information in the employees questionnaire:</b> Consisted of 3 questions - the name of the hospital, position and the title of position	Consisted of 3 questions - the name of the hospital; position (question re-classified to cover 4 categories of employees); deleted the title of the position; added question of employees experience	Position adopted from MOH hospital. It was also found that differences could be picked up between employee types and length of service.

**Section 2: Basic Information:** This became more comprehensive than in the pilot study.

**-Basic information in the patients' questionnaire:** As patient satisfaction is an important element of TQM, the researcher designed the first questionnaire, which dealt with patients. It aimed to gauge patient satisfaction and included two main subjects. The first one included the quality concepts. The second one included all health services provided to the inpatient, added to some of the elements of TQM, which related to the patients. This included internal and external environment, systems and work procedures, medical services, medical support services and other services considered as effective in quality and TQM.

**-Basic information in the employee questionnaire:** This is divided into two sections. In the first section the questions related to quality, and in the second, the questions related to TQM. The first part was the introduction to the second, since the main study was TQM. As in the pilot study, the researcher visited hospitals and the theoretical studies clarified that the information and ideas were about poor quality, which indicated that there was a need to conduct research into quality.

After the pilot study, the researcher developed the questions of the main study in the following way:

**-Questions Related to Quality:** These included five main points, which were concepts, systems, objectives, plans, standards and indicators of quality.

- The systems of quality. The researcher added questions about the quality system. Yes or No was used to determine the character of the quality system.
- The quality objectives. The researcher added questions about the quality objectives of these systems to clarify the quality objectives.
- The quality plans. This question was redesigned to clarify the activities of the quality system and to assess the relationships between these plans and the objective of improving the quality of health services.
- The quality standards and indicators. This question was redesigned to determine the characteristics for both standards and indicators.

**Questions Related to the TQM:** included the following points:



- The definitions of TQM. This question included all opinions about the theoretical basis of TQM definitions.
- The objectives and plans of TQM were clarified in the previous questions, which related to quality objectives and plans.
- The importance of TQM in hospitals. This question determined the degree of importance of applying TQM and its elements in hospitals.
- The elements of TQM. The pilot study included questions about some elements of TQM, such as the managerial environment, patient and employee satisfaction. However, in the main questionnaire the TQM elements became more comprehensive and formulated seven hypotheses from H3-H9. Every one related to an element of TQM. The researcher collected most of these elements in one question using Likert standards, to accurately determine the extent of application of TQM in hospitals. The structure of these hypotheses included: The commitment from the top management for the implementation of TQM; customer satisfaction; the process; the cultural environment; human resources, the cost of quality and the tools of TQM.

To avoid problems of communication relating to different nationalities, the two questionnaires in the pilot and main study were written in both Arabic and English. The original questions and instructions in the questionnaire were in English (the source language). The researcher used the back translation method to translate into Arabic (the target language). A panel of experts were consulted to validate the questionnaire (both Arabic and English versions) (Brislin, 1970, pp.185-191). This panel of experts was composed of:

- Three management academics and two statistical academicians (specialists in administration and social studies). The three academicians had a strong command of both languages. They were Arab-speaking colleagues from king Abdul Aziz University in Jeddah who obtained their doctorates in management from a western university. They revised translations of the questionnaire.
- Three quality department administrators, and
- Two bilingual translators (Arabic / English)

The versions of the translated questionnaires were compared and the differences found were discussed. The final version was then prepared after the researcher discussed it with the panel and it was viewed by a local adviser who had a strong command of both languages. After this, the revised version was sent to employees and patients for pre-testing (to check the reliability of the translation and also that the respondents understood the concept being asked, that is, that they were answering what the researcher wanted them to answer). This pre-testing enabled modification and re-articulation of the questionnaire and also to test that the questions were relevant to the people being asked. After taking into account the changes from the pilot testing, a final version was formulated and sent to three patients and three hospital staff. The respondents generally did not have any significant difficulties in answering the questions or in their administration. Their only major concern seemed to be in the length of the questionnaire (they felt that it was rather long, although all of them finished answering the questions). After minor amendments this final version was sent to a specialist for proof reading and to further test that the terminology was accurately translated, and to the statistician, who approved it without further amendments. This somewhat cumbersome process was aimed at ensuring the highest level of validity (and reliability), given the financial and time constraints.

## **6.5 Samples**

As with a lot of research, this study used sampling techniques instead of a census survey, for many reasons such as, time and cost, realising feasibility and quality (Lynn, 2002, p.185). In addition, the census survey does not necessarily provide more useful results than a sample survey (Saunders *et al*, 2000, p.151).

Sampling is the selection of a portion of the total population under research and analysis. As argued by McDaniel and Gates (1996, p.71), sampling involves the selection of units of a whole in order to reach a general deduction and conclusion about the entire population in terms of behaviour with reference to the sample. Since the statistical objective of this research is to generalise the findings to the total population based on the sample, prudent and precise sampling was crucial. Hence the sample selection process was to be sophisticated and compatible with the research in order to ensure that the sample to be defined was a fair representation of the population from which it was drawn (Bagozzi, 1994, p.38).



The many stages for selecting the sample were as follows:

-The pilot study and the main study were applied in Jeddah City. Jeddah had been selected because it was one of the biggest and most important cities in the KSA (MOP, 2000 b, p.34). There was very little research about quality in the KSA applied to the hospitals in Jeddah and it was the home city of the researcher, who could not move to the other areas due to certain social considerations. In 1997 Jeddah was selected for the pilot study because of the availability there of a number of suitable private and government hospitals. In 1995, there were 40 hospitals in Jeddah, 28 of them were in the private sector, nine operated by the MOH, two hospitals were operated by the Military authority and one was the University Hospital (MOP, 1995 a, p.108). In 2002 Jeddah was selected again for the main study as it had a suitable number of MOH hospitals available. So the framework of the main study was made up of the general hospitals under the MOH in Jeddah City in the KSA. The study applies to all of these hospitals.

The selection of the final hospitals to be studied was based on the following:

The pilot sample of hospitals included 14 hospitals out of 40 hospitals in Jeddah. The samples included different types of hospitals (government and private sector). The government hospitals included government hospitals under the Ministry of health (King Fahd Hospital, Childbirth & Children hospital, Al Amal Hospital, Mental hospital, Eye Hospital and King Saud Hospital, a government hospital under the Military authorities (King Fahd Armed Forces Hospital) and University hospital (King Abdulaziz University Hospital). The private hospitals included the Saudi German hospital, Dr. Erfan & Bagedo hospitals, Dr. Bakhsh hospital, Al Maaghraby hospital, Al Ansar Hospital and Tarik M.Bin Ladin Hospital.

The above hospitals were selected because of their diversity in sector (government and private), size, type of treatment (specialist versus generalist), and demographics of patients (a children's hospital, versus mixed age groups, for example), state versus private.

The pilot study clarified that the military hospitals and the university hospitals had different systems from the general hospitals so they were not included in the main study. Military hospitals have many facilities compared to other government hospitals. They have huge budgets and many foreign companies contribute to their operation. These hospitals provide services solely for the employees of the Ministry of Defence and their families. The University Hospital in Jeddah had a new building constructed in 1997, and had advanced equipment. Also, most of its physicians worked in the Medical College, so they were at a high level in their work. The private sector hospitals refused the researcher permission to distribute the questionnaire directly to the employees and patients, but demanded that the questionnaires be distributed by the hospital management. This affected the sample, it is very probable that the management distributed forms only to employees who would hold similar views to the management, hence the degree of honesty in the answers was questionable. The logistical problems of previous hospitals meant that they were to be removed from the study. In general the MOH hospitals were suffering from many problems (see chapter two). Also according to the pilot study, the level of quality in the general hospital was lower than other hospitals. So the framework of the main study was made up of all the general hospitals under the MOH. In general, the researcher wanted to include the private hospitals in the main study as it was hoped that this would give the study the capability of comparison with the private hospitals, but that was for the previous reasons.

A population is “any precisely defined set of people or collection of items which is under consideration” (Hussey and Hussey, 1997, p.55). In this study the population was represented by in-patients (males and females, adults and children). All these people were affected by how the hospital delivered its services, hence the need to study all of them. In-patients were preferred to out-patients because inpatients evaluated all kinds of services they were provided such as food, bedding arrangements etc (see chapter 2) while out-patients could only evaluate some of the services. This study is interested in all aspects of TQM that the health service provided.

The people researched also consisted of the employees of the sample hospital (doctors, nurses, others clinical staff and non-clinical staff). All functions and



categories of employees were included as the realisation of quality and TQM is not achieved without the co-operation of all employees.

The study could have been more comprehensive if it included all kinds of customers but this study was limited to just in-patients and employees. It was considered that these groups were the more likely to capture the most information compared to the rest, taking financial and time resources into consideration. Also patients and employees were considered as the primary customers in health care (see chapter 5). The following paragraph includes three main points that are types of samples, size of samples and target information in the sampling frame.

**Types of samples:** Probability sampling was adopted for this study. According to Bryman and Cramer (1994, p.100), “with probability sampling, each unit of a population has a specifiable probability of inclusion in a sample..., each unit will have an equal probability of inclusion” This allows the selection of a sample that is representative.

A stratified random sample is considered as a random sample taken from a non-homogenous population. Since the general rules in random samples are the samples taken from a homogenous population, so the first step in this type of sampling is to make the population homogenous by dividing the non-homogenous population to homogenous in the start. In the stratified sampling the population is “subdivided into homogeneous groups, called strata, prior to sampling” (Remenyi, *et al*, 1998, p.195). In this study a stratified random sample was used for patients and employees for the following principal reasons:

- The population of the research was non- homogenous according to the size of the hospitals as there were large and small hospitals. The main objective of the study had to be reconsidered, that is the global picture about the quality of services provided in MOH hospitals in Jeddah.
- This type of sample was used for employees and patients to be sure that “each identifiable strata was taken into account” (Hussey and Hussey, 1997,p.146), to be sure that “every start was represented proportionally within the sample”(Saunders *et al*, 2000, p.164).

- Stratification may produce a smaller bound on the error of estimation that would produce a simple random sample of the same size. This result is particularly true if measurements within strata are homogenous.
- The cost per observation in the survey may be reduced by stratification of the population elements into convenient groupings.
- Estimates of population parameters may be desired for subgroups of the population. These subgroups should then be identifiable strata.

There is no way of stratifying the population according to the characteristics of the populations in this study and to the hospital sizes. It would be tempting to use the number of hospitals as a stratifying parameter (distribution of an equal number of questionnaires in every hospital). This sample was used by dividing the population into subpopulations with equal levels for the random variable of interest. Since some hospitals had a small capacity of patients and employees, the representation in the total sample was not enough. Using the proportional allocation was not suitable as it resulted in the smallest hospitals having a relatively small number of patients and employees compared to larger hospitals and the sample size in some hospitals may have had less than 30, 30 being the minimum number needed for many statistical tests in this study. Also the difference between hospitals made the equal allocation useful and logical, rather than the proportional allocation as it helped to reduce the variances and differences between the population of the study. As proportional allocation would mean that a patient in larger hospitals would have a lower chance of being selected compared to a patient in a smaller hospital. The probabilities of selecting a respondent from the same population would therefore vary according, not to a characteristic of the population, but hospital size. Therefore each hospital was allocated 80 questionnaires for patients and 100 for employees.

The selection of the respondents was done using systematic random sampling as opposed to simple random sampling “in systematic random sampling each patient should have an equal chance of being selected” (Remenyi, *et al*, 1998, p.194). While simple random sampling eliminates bias in the selection, it is “accurate and easily accessible” but may take a long time and much effort from the researcher if the sample size is large (Abetad, Adas, Abud-Al Hage, 1997, p.114). However, systematic random sampling was used. This is because in systematic random



sampling there is no need to match the numbers of cases (individuals). The main advantage of systematic sampling over simple random sampling is that it eliminates the need to plough through a random number table in search of numbers to tie in with the corresponding cases. For a large sample, this can be a laborious and time-consuming process and is prone to mistakes (Bryman and Cramer, 1994,p.101). Given the large size of the sample (345 for patients and 450 for employees) it was found to be appropriate to use systematic random sampling. Also, if a prospective respondent does not want to complete the questionnaire, obtaining the next respondent is much easier compared to random sampling. In some cases, the respondent would have been discharged or transferred a day before (list may be slightly different from actual), necessitating another selection. The researcher also took the relevant precaution as recommended by Bryman and Cramer (1994, p. 101) that there was no inherent order to the list of respondents in the sampling frame to ensure a representative sample.

In this study the systematic random sample method was used for the inpatients and employees in the hospitals. The patients from emergency departments, outpatient departments, from intensive care departments and children under 12 years old were not included in the study. Patients were selected systematically and randomly. The random systematic sampling method was used to select the sample of employees after dividing them into four groups - physicians, nurses, other clinical staff, and non-clinical staff. In King Saud hospital the whole population of patients was taken, as it was a small hospital (see table 6.3). In other hospitals the equation of sampling fraction = actual sample size/ total population (Saunders *et al*, 2000, p.162), was used for every hospital then the first number was taken randomly.

**Size of Sample:** There is no definitive number of sample size provided in literature. However, there were important considerations when choosing the sample size such as “Type of sample, variability in the population, time, cost, accuracy of estimates required and confidence with which generalisations to the population were made” (Remenyi, *et al*, 1998, p.195). In addition to, “the margin of error which can be tolerated, the types of analyses and the size of total population”(Saunders *et al*, 2000, p.155).

The procedures used in selecting the sample size for patients and employees were as follows:

- As some statistical techniques, which are used in analysing data need a sample size of over 30 for patients and employees in each hospital, the effective response rates from the pilot study in MOH hospitals indicate that this was approximately between 40% and 50% for patients and employees and the sample size acceptable between 5% and 10% from the population (McDaniel and Gates, 1996, p.542). So the questionnaires of patients that needed to be distributed in every hospital would be approximately 80 for patients and 100 for employees as the size of the employee population (8557) was higher than the patient population (3250). According to the previous explanations, the sample sizes of 720, 900 (patients and employees respectively) needed to achieve approximately the desired sample size, and to take into account the size of the patient and employee populations. It was found that this target could be achieved by sampling approximately 22,15% of the patient population and 10.51 % the employee population. In the final analysis the final effective sample proportion of 10.6% of patients and 5.25% of employees (345, 450 respondents for patients and employees respectively were used in the final analysis) (see tables 6.3,6.4).

-The actual sample size also depends on the type of statistical technique to be used. For example (Hair, Anderson, Tatham, and Black, 1998, pp.165), in linear regression a sample size of 20 is about the absolute minimum (for a single variable regression). For multiple regressions that were used in this study, the minimum guideline is 5 observations for one independent variable, and preferably 15 to 20 observations per variable. For factor analysis, the minimum is 50 observations and a minimum of 5 observations to the number of variables) with a more acceptable size of 10 to one ratio (Hair *et al*, 1998, pp.98, 99). For comparative analysis (e.g. *t*-test, ANOVA), where normality of data is required, a sample size of over 30 may be necessary for comparison between subgroups (e.g. employee categories) (Hair *et al*, 1998, p.342). Given that there was a host of statistical techniques, including all those mentioned in this paragraph, it was decided that a sample size of 345 patients and 450 employees would be a more likely effective compromise of all these techniques and data requirements.



According to Abu-Chaar (1997, p.70) there are two basic types of error arising from survey research – random error (variation in the research, either through poor design or the implementation of the survey). Random error is unavoidable but it can be minimised by increasing the sample size. However, there are also risks associated with increasing the sample size. Hair *et al* (1998, pp.11,12) argues, “But increasing sample size can also produce too much power. By this the researcher means that by increasing sample size, smaller and smaller effects will be found to be statistically significant, until with very large sample sizes almost any effect is significant. The researcher must always be aware that sample size can impact on the statistical test by either making it sensitive (in the case of small sample sizes) or overly sensitive (in the case of very large sample sizes)”. In this study the sample size was neither very large or small (see tables 6.3, 6.4).

**Table 6.3**  
**Distribution of Hospitals Beds and Employees**

Number	Hospital Name	Beds	Employees				Total of employees
			Physicians	Nurses	Others Allied clinical health personnel	Non-clinical personnel	
1	King Fahd	897	591	779	504	971	2845
2	King Abdulaziz& Oncology centre	475	212	430	234	558	1434
3	Al Thaker	119	80	128	157	145	510
4	Childbirth & Children	1063	227	506	170	712	1615
5	Al Azizya Childbirth & Children	131	78	142	92	159	471
6	Eye Hospital	85	54	104	72	208	438
7	Mental Health	134	23	134	68	293	518
8	Al Amal	266	21	132	64	364	581
9	King Saud	80	24	35	36	50	145
Total		3250	1310	2390	1397	3460	8557

Source: MOH, 2002 a, *Patients and Employees Numbers in MOH Hospitals in Jeddah city*, p.1.

Table 6.4

Distribution of Patient and Employee Samples

Number	Hospital Name	Patients	Employees				Total of employees
			Physicians	Nurses	Others Allied clinical	Non-clinical	
1	King Fahd	41	12	11	14	16	53
2	King Abdulaziz & Oncology centre	40	14	12	13	15	54
3	Al Thaker	37	11	11	12	12	46
4	Childbirth & Children	39	11	14	13	15	53
5	Al Azizya Childbirth & Children	42	14	12	12	11	49
6	Eye hospital	37	12	13	14	12	51
7	Mental Health	35	11	12	13	12	48
8	Al Amal	38	13	13	12	11	49
9	King Saud	36	11	12	11	13	47
Total		345	109	110	114	117	450

-Target information in the sampling frame:

An important consideration of questionnaires is that they must be answered by the respondents who possess the relevant data. This is crucial because the research can be rendered invalid and misleading if the wrong person answers the questions. The idea of seeking an individual as a key informant is quite common in survey research (Remenyi, *et al*, 1998,p.194). However, there are no defined rules or standards for selecting the informant, the selection is flexible and subjective. However, to obtain useful information, the proper selection of the respondent is important. Of particular importance in this study is the issue of the opinion of children, particularly those who do not know how to answer and those who need assistance from parents.

Consistent with other research in this area, the staff to be asked were at all levels of employment. However, the issue regarding patients was somewhat more complex. This is because the patient age group in the hospitals was very wide. In this study the respondents' age group was from 12 years old to 95 year old adults. Children from age 0 to under 12 years old were not included in this study because they were believed to be unable to answer the questions without assistance from family or friends, thus introducing other viewpoints. The age of 12 was chosen as it is the beginning of adolescence and the age at which children move to secondary education in the KSA. A small number of questionnaires were distributed to 12 year-old patients in order to test their ability to answer the questionnaires. The researcher found that they could



answer without any problems. The researcher explicitly explained to the parents that the opinions should be those of the children and that help should be minimal and only restricted to the explanation of terms and concepts if the children were not sure.

However, measures were also taken to ensure that there were no significant statistical differences between children and adults. This was done by comparing the means for the children from those of adults. Three categories were created (up to 15 years, 15 to less than 40 years and 40 or more). These were tested using ANOVA to check the difference between means. The results of the ANOVA comparison of the mean score on satisfaction with overall quality (q 2.101) between those aged up to 15 years (mean=2.4), those from 15 to less than 40 (mean=2.63) and those equal or more than 40 (mean=2.75) was not statistically different ( $p = 0.228$ ). It can therefore be safely assumed that the influence of parents on their children's views would not compromise the results in any way.

## **6.6 Distribution of Questionnaires**

The point relating to the quantity of response is crucial. The most important consideration for the selection of the questionnaire distribution method is the quantity of the response rate and the quality of the response (Vaus, 2002, p.181). Statistically the drop and pick approach tends to have a higher response rate than other approaches such as postal questionnaires (Ghauri *et al*, 1995, p.60). Previous studies in Saudi Arabia have indicated low response rates. A high response rate was particularly important in cases where the population size was small. Also, as was seen in the pilot surveys the response rate was low, being approximately between 40% to 50% for the government hospital.

The questionnaires were distributed during May and June 2002. The researcher went to the hospitals, and determined the samples of in-patients and employees with every hospital management. The main study was carried out using face-to-face interviews with respondents, as the researcher explained to them the aims of the research and the subject. By visiting the respondents and dropping the questionnaire in person, the researcher was in a position to give some confidence and encouragement to the respondents. During this contact process the researcher answered any questions of a technical nature and clarified any questions that the

respondents asked. More importantly though is that the researcher had the opportunity to reassure the respondents that the survey was only for academic purposes, that this research was by the university, not the government or hospitals, that their (respondents) anonymity was guaranteed in full and that they as patients and employees were bound to benefit from the findings in the long term.

The researcher was, however, conscious of not discussing any responses to the questionnaire with the respondents in order not to introduce any bias into the results. The researcher never gave any indications of the expected result and simply asked the respondents to answer from the knowledge they had at that moment in time, as this would have compromised the reliability of the result. In the case of employees, for example the researcher assured employees that it did not necessarily mean that TQM was better than QM or vice versa.

**Notes:** As the researcher had limited time to finish her work she employed 4 people to assist her in distributing the questionnaires in the hospitals. She trained them and gave them information on how to distribute the questionnaires to be sure that all of them followed the same procedures as the researcher.

The social work department helped to collect the questionnaires from the patients, and the employee department helped to collect the questionnaires from the employees. In some hospitals such as the Mental Health and Al Amal hospitals, the hospital management chose the patients who could answer the questions, then chose the sample from them.

The researcher distributed 720 questionnaires to the patients and 900 to the employees. The overall response rates before checking how many of these were usable was 58.6% and 64.1% for patients and employees respectively. The effective response rates, after some questionnaires were rejected for various reasons including too many omitted questions, inconsistencies etc are 47.9% and 50% respectively. These are the usable questionnaires used in the final analysis. The direct involvement of the researcher and others (4 people) in the distribution of the questionnaire to patients and employees and the assistance given by some staff in the collection of the questionnaire could be a contributory factor in raising the response rates (see table 6.5).



Table 6.5

**Questionnaire Distribution**

Questionnaire	Distributed	Collected	Overall Response Rate (%)	Deleted*	Effective Response rate	Effective Response (%)
Patients	720	422	58.6	77	345	47.9
Employees	900	577	64.1	117	450	50

\* Numbers discounted due to ambiguity and inconsistency were 29 patient questionnaires and 46 employee questionnaires. While the number discounted due to editing (e.g. missing data) were 48 patient questionnaires and 71 employee questionnaires.

**6.7 Pilot Study**

The survey was conducted in such a way that reflects the existence of a theoretical background to quality or TQM. The questions were addressed to extract information from the actual people (hospital patients and employees). According to Altman (2002, p.147) the pilot study can contribute to “assessing the quality of data collection forms, and for checking the logistics of trial, such as expected time”. Many issues of the pilot study are discussed in Appendix 4.

**6.8 Statistical Techniques**

The statistical techniques in this study are divided into two parametric and non-parametric. Among the popularly used parametric tests are *t*-test and ANOVA (Analysis Of Variance), which compare means of different samples, Linear Regression Analysis, which explains the relationship between variables and correlation, which assess the strength of the relationship between variables. Non parametric tests include the Chi Square test (test association between metric nominal variables) and Factor Analysis, which is often used to aggregate the dimension of many related variables into major constructs (for more detail see (Abu-Hatab and Sadek, 1991). In addition to various descriptive statistics such as percentages, frequency, mean, median, mode, std. Deviation. On each hypothesis or objective, 5% is taken on the critical significance level of test statistics (see Appendix 5).

**6.9 Limitations of the Research:**

These include the choice of the location of the study, the sample chosen and the timeframe in which the study was conducted:

- The study was only concerned with patients and employees in hospitals. It is acknowledged that if it included all customers it would have been more comprehensive.
  - The study was only concerned with in-patients. It is acknowledged that if it included out-patients it would have been more comprehensive.
  - The study was applied in Jeddah City, but if it was applied to all cities in KSA it would have been more comprehensive.
  - The study was applied in general hospitals under the MOH. If the study was applied in all kinds of hospitals maybe it would have resulted in different research results.
  - The study was applied in 2002.
  - The patients in Al Amal and the Mental hospital were chosen by the management, then the sample taken from them. That may have affected the answers.
  - The children who answered the questions were 12 years old and over. Children from age 0 to under 12 years old are not included in this study because it was thought that they could not answer the questions without co-operation and influence from others. This means that the study did not include all patient age groups.
  - Very little information is known about TQM in health services in KSA. The primary aim of this study was to provide a general perspective of the TQM issues in KSA and to test hypotheses on selected hospital issues in general. The conclusions were therefore based on the aggregated data of all hospitals combined together in this one survey. However, analyses were conducted for individual hospitals. As will be shown in Chapters 7 and 8, in some cases the results differed between the aggregated hospital data and the data based on individual hospitals. While this was not the case in the majority of the cases, the few cases where there were differences indicate that data aggregation could result in the loss of some information. However, data aggregation was necessary in simplifying assumption, given the scale of the study. The issues of individual hospitals can be explored as a separate issue in further research. The samples size in analyzing each hospital is small in some tests and this makes some limitation in the results of this test.
- Among the most important difficulties that faced the researcher were:



- Shortage of scientific references and research and information about the subject of the research in the Kingdom of Saudi Arabia.
- Non-cooperation of some hospitals' employees.
- Lack of awareness of the importance of scientific research.
- Some physicians were not interested in filling the questionnaire forms, and they considered TQM to be an administrative process that did not concern them.
- Low educational level of in-patients in the hospitals.
- Instability of the psychological state of some patients in the Mental hospital and at the Amal Hospital. They considered the questionnaire to be a provocation to them.
- Shortage of information, whether applied or documented, about quality and TQM in government hospitals.
- Only recent interest in the issue of quality and TQM, particularly in government hospitals, and employees' lack of knowledge and interest in such issues.

#### **6.10 Reliability and Validity**

Every researcher attempts to eliminate or at least minimise errors in measurement. Several methods can be used. However, whatever method is used, the researcher must address the issues of reliability and validity.

Reliability, which is a precondition of validity, relates to the extent to which results from one measure can be replicated in others. Bagozzi (1994, p.17) defines reliability as, "the amount of the agreement between independent attempts to measure the same theoretical concept". Reliability differs from validity (to be defined later) in that it does not relate to what should be measured, but how it should be measured.

For this study, reliability will be tested in two different ways. Firstly, internal checks will be used in the designing of the questionnaire. This will be achieved by asking the same question in different ways and in different sections of the questionnaire (rewording of the question). The answers will be compared. There should be no differences. Another method generally used is Cronbach's alpha value. This value measures the internal consistency of the items used to construct the multi items scale referred to as the Likert scale. According to Peter (1979, p.140), the Cronbach's alpha value is the most widely used approach in social science research. The Cronbach's alpha coefficient varies between 0 and 1. A Cronbach's alpha value of 0.7 is considered as the standardized lower limit. However, for exploratory

research, a value of 0.6 is generally accepted as the lower limit for exploratory research (Hair *et al*, 1998, p. 118), while Nunally (1978, p.124) argues that even a value of 0.5 is acceptable as long as there is a sound theoretical argument for keeping the scale or individual items within the scale. Since most of the factors used in this study have been confirmed in previous studies, the results are expected to be reliable. However, reliability analysis, as measured by the Cronbach's alpha value will be used to determine internal consistency of items used in the scale. This value measures the internal consistency of the items used to construct the scale. Since most of the factors used in this study have been confirmed in previous studies, the results are bound to be reliable. For factor analysis, the Cronbach value will be used. The consistency of regression analysis results will also provide more evidence of reliability. The value relating to the employees and to patients indicated that there was a high correlation between the items of factors employed in the study and this value shows high reliability of used questions (see appendix 6 which include details about Alpha and Alpha if the item was deleted).

Reliability was also achieved through the use of multiple items scale, the Likert scale, which was established and modified for this research. According to Abu-Hatab and Sadek (1991, p.123), both the reliability and validity increase with an increase in the number of items. The questionnaire design consisted of many items measuring one construct using these well-established scales (from literature). The reliability with regard to operation will be covered under 'validity'.

Reliability in analysing data: in the patient questionnaire, the question about the availability of the medicines prescribed by the doctor in pharmacies was asked in different ways in order (q2.43; 4.6) to test the reliability of the question. The mean was 2.84 in the first one and 3.28 in the second one that indicates there was insufficiency in this service. In the employee questionnaire, the questions about top management support of TQM were asked in different ways in order (6.3; 18.2) to test the reliability of the questions. In the first question the mean was 4.13 in the first one and 3.81 in the second one that indicates there was insufficient top management support for TQM. Also the questions about the management systems being old and about using the traditional administrative methods were asked in different ways in order (6.59, 18.3; 6.60, 18.6) to test the reliability of the questions. In the first question the mean was 2.6 in the first one and 4 in the second one. In the second



question the mean was 2.42 in the first one and 3.99 in the second one. These results indicated that the management systems were old and the hospitals were perceived as using the traditional administrative methods.

Cronbach's alpha value indicated more evidence of reliability. The value regarding employees and patients indicated that there is a high correlation between the items of factors employed in the study and this value shows the reliability of the questions (see appendix 6 which include details about Alpha if the item deleted).

According to Bagozzi (1994, p.18) validity is the extent to which a measure measures what it is intended to measure and the degree to which it is free from systematic error. It is concerned with how well a concept is defined by the measures used as opposed to reliability, which relates to the consistency of the measures. The literature presents various forms of validity but the dominant ones appear to be content/face validity, criterion validity, convergent validity and construct validity (Bagozzi, 1994, p.19). According to the author, these types of validity are related to each other. However, reliability sets the upper boundaries of validity.

Churchill (1999, pp. 454,455) defines content validity as focusing "...on the adequacy with which the domain of the characteristic is captured by the measure". And construct validity as: "...most directly concerned with the question of what the instrument is, in fact, measuring". For this study, content validity per-se was achieved through the conceptualisation of the TQM process and this was achieved by using a literature search. Items for the scales were selected on their relevance to TQM and modified specifically for hospital situations. Many procedures were carried out relating to the validity such as using a pilot study and both literature and field to provide information that was used to formulate the hypothesis. The pilot study and pilot testing of the questionnaires on several occasions, all contributed to refine the questions so the respondents would have no problems in answering the questions as recommended by Saunders *et al*, (2000, p.304)'. In designing the questions the researcher used words giving the same meaning to the responses to be sure that every one understood the questions in the same way (Abu-Chaar, 1997, p.84). In some questions the researcher put the definition as the definition of indicators (q.9 in the basic information in appendix 3.1), whilst including some explanation such as the

intention of the process (in appendix 3.1, q. 1.2 q 5.1) in some questions. Also during the distribution of the questionnaires the researcher answered any questions, which the respondents wanted clarified (pilot study). In addition to that the researcher “was clear about the question required” and about designing questions - respondents therefore answered the questions in the way the researcher intended. In general, construct validity was achieved through the way the whole research was conducted beginning with hypothesis generation, questionnaire design, sample selection and administration of the survey. The appropriateness of the statistical tests have also contributed to improving the construct validity and validity in general. Underpinning the way the entire research has been conducted are the concepts of validity and reliability (more details in the next chapter).

Before analysing the data of the main study in the nest chapters, it is necessary to discuss the plan of execution that includes many steps of analysing data (see Appendix 7), discuss analysing data that includes the large effects and statistical power development of scales, aggregate variables and transformation and recode data (see Appendix 8 ), discuss the plan of execution that includes many steps of analysing data (see Appendix 7 ). In addition, provide distribution data of patients' questionnaire (see Appendix 9.1) and provide distribution data of employees' questionnaire (see Appendix 9.2).

## **6.11 Conclusions:**

This chapter introduced and explained the general methodology adopted during this study. The survey method and quantitative research approach were used in general. The main data to be used in meeting objectives and hypothesis testing was generated by way of a questionnaire in the pilot and main study and an interview method in the main study but as the minor tool. The design of the main questionnaires was developed through many stages: hypotheses, objectives, the pilot study and the two questionnaires - one dealing with the patients and the other dealing with the employees. The samples of the study were 345 in-patients and 450 employees in MOH hospitals in Jeddah City. The pilot study helped to determine the sample and redesign the main questionnaires. Statistical techniques were evaluated and the important statistical parameters were described in general. This chapter also included



the locations and time and samples limitations, reliability and validity and disused many points before analysing the data in the next two chapters.

In the next chapter the data will be analysed by SPSS package using various techniques. Analysis of the data will include the general and basic information for both patients and employees in hospital samples. Analysis of the basic information will be through answering the main questions of the study and discussing the objectives.

## **CHAPTER 7**

### **DATA ANALYSIS I (ANALYSIS OF THE GENERAL INFORMATION AND THE OBJECTIVES OF THE RESEARCH)**

#### **7.0 Introduction**

The main purpose of this chapter and the following chapter is to test the hypotheses and meet the objectives of the study through answering the questions that have been raised in the first chapter. Both hypotheses and objectives include the issues of both quality and TQM. This chapter will analyse general information and some of the basic information. The basic information includes the objectives of the research which include defining the concepts of quality and the characteristics of quality systems, illustrating the definitions and importance of TQM.

The data will be analysed as follows in order to achieve the objectives of the research.

#### **7.1 General Information:**

This section includes background information about the hospitals in the sample including information about employees and patients.

##### **7.1.1 The Sample of Hospitals**

Table 6.3 (in Chapter 6) shows the distribution of the hospitals included in the study. There were nine government hospitals under the MOH. Hospitals (1), (2) and (3) provide health services in all medical specialisations while others provide health services in a specific medical specialisation. Hospital (4) and (5) specialise in childbirth and children's diseases. Hospital (6) specialises in eye diseases. Hospital (7) specialises in mental diseases. Hospital (8) specialises in drug addiction and hospital 9) specialises in infectious diseases.

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1. Hospital Numbers: King Fahd hospital (1). King Abdulaziz & Oncology centre hospital (2). Al Thaker hospital (3). Childbirth & Children hospital (4). Al Azizya Childbirth & Children hospital (5). Eye hospital (6). Mental Health hospital (7). Al Amal hospital (8) and King Saud hospital (9).

2. The information was given by both patients and employees in response to most of the questionnaires. The answers were ranked between 1 and 5 and a mean of below 3 was considered lower than expected.



According to MOH (2000 b, p.3; 2002 a, p.10; 2002 b, p.1) the classification of hospitals in the KSA can be classified large, medium and small according to the number of beds. The large hospital has between 400 and 1000 beds, the medium hospital has between a 100 and 400 beds and the small hospital has a 100 beds or less. Table 6.3 shows the distribution of hospitals included in the study in terms of size (see chapter 6, p.156). There were three large hospitals, four medium hospitals and two small hospitals. The large hospitals include hospitals (1), (2) and (4) and the number of beds in each is between 475 and 1063 beds. This category constituted 74.9% of patients in MOH hospitals and 68.8% of employees. Medium sized hospitals included hospitals (8), (7), (5) and (3) and the number of beds of each is between 199 and 266 beds. These hospitals represented 20% of patients and 24.3% of employees in MOH hospitals. Small hospitals include hospitals (6) and (9) and the number of beds of each is between 80 and 85 beds. These hospitals form 5 % of patients and 6.8% of employees in MOH hospitals. The table shows that although hospital (6) is considered to be a small hospital, the number of its employees is much higher than that of hospital (9) and close to that of hospital (5). Maybe this is due to the rapid bed turnover in hospital (6), as the average length of stay in it is 2 days (see Table 7.1). The table also shows that the total number of beds is 3250, while the required number is 3886 beds (MOH, 2002 b, p.3). This reflects a shortage of about 16.3%, which means that there was a shortage of 636 beds. Table 6.4 (see chapter 6, p.157) shows patient and employee samples in the hospitals under study in each hospital. Also Appendixes 10 and 13 show more details about the sample of employees and patients in each hospital.

Table 7.1 shows some of the statistical indicators about beds in the sample hospitals. It includes the average length of stay and bed occupancy rate during the study period. As there were no sanctioned indicators to be used as a standard for evaluating these indicators, the researcher compared them with the same indicators in the hospitals of the MOH in the Kingdom (MOH, 1998, p.4). Table 7.1 also shows that the average length of stay in 5 hospitals is more than the rate in other hospitals (the average increase ranges from 1.1 to 7.9), while it is less in 3 hospitals than the rate in other hospitals (the average reduction ranges from 1.3 to 2.1). The table also shows that the bed occupancy rate in 3 hospitals is more than in other hospitals (the average increase ranges from 2.3 to 6.9), while the rate is less in 5 hospitals than in

other hospitals (the average reduction ranges from 3.1 to 44.4). Variations in the previous averages may be due to many reasons such as case-mix or social support services' availability. It also may negatively affect the quality and the costs of health services provided in the sample hospitals. This may mean that the hospitals need to make changes or reforms on how they are managed. The changes may include increasing management training in order to improve the level of quality in these hospitals.

Table 7.1  
Indicators Related to Beds in MOH Hospitals

Hospital	Averages in MOH hospitals in the Kingdom		Average in hospitals of the sample	
	Average length of stay (days)	Bed occupancy rate (%)	Average length of stay in days	Bed occupancy rate (%)
1	4.1	64.1	12	71
2	4.1	64.1	7	61
3	4.1	64.1	2	49
4	3.3	65	5	79
5	3.3	65	2	60
6	4.1	64.1	2	53
7	24.9	64.4	27	71
8	24.9	64.4	26	20
9*	24.9	64.4	NA	NA

Sources: MOH, 2000 c, *Movement and Length of Stay of In-patients in MOH hospitals in Jeddah City*, p.12; MOH, 1998, *The Measurement Indication for Services Indicators in Health Situations: Health Centres and Hospitals*, p. 3.

\* Only average length of stay in days, bed occupancy rate in hospital 9 is not available (NA).

### 7.1.2 Position and Years of Experience of the Employees in Different Hospitals

According to MOH (1997, p.99). The employees in health care have been classified into four main categories, these are physicians, nurses, other allied clinical health personnel (health specialists and technical specialists) and non-clinical health personnel (non-clinical technical, administrative and crafts personnel), and that clinical personnel constituted 59.6% of the manpower, while non-clinical personnel represented 40.4%. Table 7.2 shows the average manpower for every 100 beds in the sample hospitals. These averages are different in the hospitals and different in the composition of manpower for each group (40 physicians, 74 nurses, 43 other allied clinical health personnel and 106 non-clinical health personnel).



Table 7.2

**Average Manpower for every 100 Beds in the Hospitals of the Sample**

No.	Hospital Name	Employees			
		Physicians	Nurses	Other allied clinical health personnel	Non-clinical personnel
1	King Fahd	66	87	56	108
2	King Abdulaziz& Oncology centre	45	91	49	117
3	Al Thaker	67	108	132	122
4	Childbirth & Children	21	48	16	67
5	Al Azizya Childbirth & Children	60	108	70	121
6	Eye hospital	64	122	85	245
7	Mental Health	17	100	51	219
8	Al Amal	8	50	24	137
9	King Saud	30	44	45	63
Average		40	74	43	106

Adapted from: Table 6.3

The distribution of the number of years of experience of the respondents is shown in Table 7.3. The table shows the mean work experience as 11.64, median is 11, mode is 10, the minimum years of experience is 1 and the maximum is 35 years. It also shows many descriptive statistics for the length of work experience of the respondents in each group. Analysis of Variance (ANOVA) tests showed that there was no statistically significant differences between the mean for length of work experience according to employment types in all categories, except between other allied clinical staff (mean = 11.3) and non-clinical staff (mean = 12.3). This indicated that non-clinical staff has longer work experience at the hospital ( $p = 0.05$ ). Indeed, as shown in Table 7.3, the coefficient of variation (CV), which is obtained by dividing the standard deviation by the mean, shows that the CV is large for all the staff, except non-clinical staff. However, the CV for non-clinical staff is again lower than that of clinical staff in general. One may reasonably conclude that in general, the non-clinical staff have lower variability in the length of service and tend to spend longer time in employment compared to clinical staff. High CV for clinical staff may be due to presence of trainees, whereas management does not include this type of staff. It also may be due to the fact that the employment system in MOH hospitals in the KSA

depends on employing many of the clinical staff via specialised companies which may change at the end of their contracts with MOH (see chapter 1).

The analysis of each hospital (see Appendix 10) revealed that the average length of work experience for physicians varies between 13.7 years in hospital 1 and 9.3 years in hospital 4, the average for nurses varies between 12.8 years in hospital 2 and 7.9 years in hospital 1; for other allied clinical health personnel the average varies between 14.4 years in hospital 5 and 8.1 years in hospital 2. For non-clinical staff the average varies between 13.2 in hospital 2 and 11.6 years in hospital 7. It is also evident from that analysis that the CV is more than 50 for all staff in all hospitals, except for non-clinical staff in hospitals 1,3 and 7 and nurses in hospital 6.

Table 7.3  
Distribution of Number of Experience Years

Manpower	Mean	Median	Mode	Std. Deviation	Minimum	Maximum	CV (%)
Physicians	11.47	10	7	6.89	1	32	61
Nurses	11.41	11	3	7.08	1	34	62
Other allied clinical health personnel	11.3	11	7	6.63	1	35	59
Non-clinical health personnel	12.32	13	15	5.18	2	35	42
Total	11.64	11	10	6.46	1	35	56

7.1.3 General Information about Patients in Different Hospitals

This section includes general background information about patients in the hospital samples which are presented in Appendix 3.2 (questions from 1 to 10 in the general information). These include sex, nationality, education level, age, income, types of patient admissions, reasons behind hospitalisation, the kind of health services provided in the hospital and the number of times the patients are hospitalised. Table 7.4 illustrates the distribution of this information. For the purpose of finding any significant relationship between the general information of patients and their attitudes to the level of quality of the services provided by the hospital, the Chi-Square and One-way ANOVA test are used. The Chi-Square test will be used when the data from



the questions are qualitative, while the ANOVA test will be used when the data from the questions are quantitative (see appendixes 5 and 6). The independent variables are general information about the patient sample and the dependent variable is the level of quality, which is from the patients' point of view (q2.101, in Appendix 3.2). The confidence interval is 95% and  $p < 0.05$ . The results show that:

- The sample included both males and females. Out of 345 patients, 184 (53.3%) were males and 152 (44.1%) were females. The Chi-Square test shows that there was no significant difference between the males and females ( $p = 0.482$ ) with regard to their opinion on the level of quality provided by the hospitals (see Appendix 11).
- The sample included both Saudi and non-Saudi inpatients. Out of 345 patients, 274 (79.4%) were Saudis and 66 (19.1%) were non-Saudis. The high percentage of Saudi patients is due to the system of the government hospitals, which accepted Saudi in-patients, while there were many pre-conditions for acceptance of non-Saudi in-patients. Using the Chi-Square test, the results show that there was no significant difference between Saudi and non-Saudi in-patients ( $p = 0.649$ ) in their attitude about the level of quality of health services in the hospitals.
- Education level results show that 56.5% of the patients in the sample were educated to a maximum of secondary level, 25.8 % were educated to diploma or university level, 2.9 % had obtained high education - PhD or a Master's degree, while 14.8 % others had no formal qualification. The mode was 3, which means that most of the respondents had an intermediate education level. This result is similar to the work of Al Bert (1987), which shows that most of the patients who use the governmental hospitals were educated to a maximum of secondary level. The Chi-Square test results show that there were no statistically significant differences among the different groups of education level in their opinion on the level of quality in the hospitals ( $p=0.723$ ). This result confirms Al Jowair's study (1988), which showed that there is no relationship between the education level and patient satisfaction (see Chapter 1).
- An analysis by age shows that 62% of the patients were in the group of 15 to 40 year olds, 30.7% were 40 years old or older and 7.3% were less than 15 years old (reducing the percentage in the last group may be related to not taking children

younger than 12 years old in this study). The results show that most of the patients were between the ages of 15 to less than 40. Mean of age = 33.4, median = 30, mode 25, standard deviation =15.32 and range = 83 with minimum of 12 years and maximum of 95 years. This result differs from Al Bert's study (1987) which showed that most of the patients who use government hospitals are of a relatively old age. The results of using the One-way ANOVA test show that age is not a significant variable in the opinion of the sample with respect to the quality of health services provided in the hospitals ( $p=0.133$ ). This result differs from Al Jowair's study (1988), which showed that age is the major deciding factor in patient satisfaction. This maybe attributed to the fact that the two studies were conducted at different times, as Al Jowair's study was 14 years earlier than this study (see Chapter 1).

- The analysis of the monthly income of the patients show that 62.3% of the sample's patients had a monthly income of less than SR 5000, 24.9% had around SR 5000- 10000, while just 11.3% of them had more than SR 10000. The results show that most of the sample patients were in the lower-income group. The mean of monthly income is = SR 2797, median = 1900, mode 2000, St. deviation = 2513 and range = 15000 with minimum of 0 and maximum of SR 15000. This result is similar to Al Bert's study (1987), which showed that most of the patients who use the government hospitals are of low income, as the government hospitals provide free health services and there was no health insurance system for most citizens. Using the One-way ANOVA test, the results show that the monthly income of the patients is not a significant variable in the opinion of the sample with regard to the quality of health services provided by the hospitals ( $p= 0.476$ ). This result is similar to Al Jowair's study (1988), which showed that the difference in the income level of patients does not affect their satisfaction (see Chapter 1). Low income of some categories in the Kingdom is accompanied by a high density of population in the popular districts, this in turn leads to low level of health and spread of diseases.
- The study of the way in which patients were hospitalised in the hospitals shows that 45.2% of the sample's patients were hospitalised through the emergency department, while 29% of the patients were hospitalised through the outpatient clinics, 13.4% through transfer from another hospitals, 7.5% were transferred



from health centres, and 4.9% transferred from MOH. These results show that high percentages of patients were hospitalised without any consultation with the hospital. They also show that most of the patients do not go to the health centres, but go directly to the hospital. This large number of patients going directly to hospitals is bound to affect the quality of services provided by hospitals. The results of using a Chi-Square test show that the different ways in which the patients were hospitalised was not a significant variable in the attitude of sampled patients to the quality level of health services provided in the hospitals ( $p=0.754$ ).

- An analysis of the reasons behind hospitalisation of patients shows the percentage of the patients who were hospitalised for medical treatment (51.9%) and those for surgery (41.7%), while the percentage of check-ups was only 6.4%. Using a Chi-Square test, the results show that there was not a significant difference in the opinions about the quality of health services provided in the hospitals between the groups of patients who were hospitalised for medical treatment, surgery and check-ups ( $p=0.06$ ).
- The data on the type of health services provided in the sample hospitals show that the therapeutic services constituted the highest percentage of respondents (98.3%). Although preventive and educational services are considered as important functions of hospitals, the results show that they represented a very low percentage of respondents (4.6% and 4.3% respectively) with respect to affecting the achievement and improvement of the quality of the health services. The results of using a Chi-Square test show that the kind of health services provided in the hospitals is not a significant variable in the attitude of the sample with regard to the quality of health services provided in the hospitals (Therapeutic:  $p=0.64$ ; preventive:  $p=0.25$ ; educational:  $p=0.74$ ) (see Appendix 11). This is maybe due to the shortage and insufficiency of preventive and educational health services provided in the hospitals as the sample size of patients who find the preventive and educational services are so small, hence they do not affect the opinion of the patients about the quality.
- According to the table, 46.1% of the respondents had not been hospitalised in the hospital before, 32.5% of them were hospitalised more than once and 21.4% of them were hospitalised just once. Using the One-way ANOVA and Scheffe



test, the results show that there was a significant difference between the groups of patients who had not been hospitalised before and those who were hospitalised more than once ( $p = 0.04$ ) in their opinion about the level of quality (see Appendix 12). The mean for those who have been hospitalised more than once is 2.63, against 2.7 for those who have been hospitalised for the first time. It is quite clear that those who have been admitted more than once were more dissatisfied than the first timers. However, it should also be noted that the mid point for quality is 3 (see rating scales in chapter 6) and hence both types of respondents are unsatisfied overall with the quality produced by the hospitals, although those who were admitted more than once were more dissatisfied.

It is evident from the above that differences in demographic factors among patients (sex, nationality, income, age, education) did not affect their opinions on the level of quality of the provided health service. This outcome is concurring with some studies such as the study of Venkatapparao and Pradeep (1995) that had concluded that the effect of demographic factors on the satisfaction of patients is limited. Also agree with some studies except the factors related to the age (Al Jowair, 1988). The above results also indicate that the method of admitting patients as in patients, reasons of such admission and the type of services provided to them are also not affecting their evaluation of the health services provided to them. The only factor that was affecting the patients' evaluation of the quality of health services is the frequency of being admitted to hospital, whereas those who had been admitted more than once were less satisfied than those who had been admitted only once. This may be because If the patients were incorrect diagnosed and had to receive further treatment their they are more likely to be dissatisfied. Also may these patients are sicker than others and this agree with the study of Arnetz and Arnetz (1996, p.164) which found the sicker patients are generally less satisfied. This result may be an indicator of a lower level of quality in the concerned hospital compared to the previous experience, also perhaps due to increase the level of patients' consciousness, expectations and requirement.

Referring to Appendix 13, which pertains to analysis of general information regarding patients in each hospital. It was concluded that the highest ratio of males and the lowest ratio of females is in hospital 8. This may be attributed to the fact that that hospital specialises in the treatment of drug addicts, and females avoid being



hospitalised there for social considerations. The percentage of Saudis in hospitals is high and varies between 97% in hospital 1 and 75% in hospital 9. This is may be due to the fact that hospital 9 is one for confining patients with infectious diseases that call for admitting patients as inpatients, be they Saudis or non-Saudi. It is also evident that the highest ratios of non-Saudi inpatients are in hospitals 4 and 5; this may be attributed to the fact that these are Childbirth hospitals, where all cases of delivery are accepted regardless of nationality. The highest ratio of illiterates is in hospital 3, this is may be due to the fact that that hospital is located in a highly populated district of Jeddah. The ratio of inpatients with a general level of education is higher, whereas the highest percentage is that of those with intermediate education (42.1%) in hospital 8. The highest ratio of the sample in each hospital is that of those who are from the age 15 to less than 40 years old, and with income less than SR 5,000; except in hospital 6, where 45.9% of the sample are from the income category (SR 5,000 to 10,000). The highest ratio of the in-patients is of those who were transferred from the emergency units, except in hospitals 6 and 8, where the highest ratio of in-patients is that of those who came from outpatient clinics. As to the cause of in-patient admittance, the highest ratio is of those who were admitted for treatment, except in hospitals (2, 3, 4 and 6), where the main cause of admission is surgical operations. In each hospitals, the lowest ratio is for check-ups, it is varies between 5% and 21% of the sample. The highest ratio of the in-patients in each hospital is that of those who are receiving medical treatment, while the ratios of those who receive preventive services are low and the ratio becomes even lower for those who receive educational services. The biggest ratio of in-patients in each hospital is that of those who were admitted as in-patients for the first time, except in hospital 8.

Table 7.4  
Distribution of General Information of Patients  
From Different Hospitals

	Count	%
<b>Sex</b>		
Male	184	53.3
Female	152	44.1
<b>Nationality</b>		
Saudi	274	79.4
Non-Saudi	66	19.1
<b>Education level</b>		
No qualification	51	14.8
Primary	48	13.9
Intermediate	75	21.7
Secondary	72	20.9
2 years- Diploma-	25	7.2
Bachelor graduate	64	18.6
Higher education	10	2.9
<b>Age</b>		
12- less than 15	25	7.3
15- less than 40	214	62
40 and older	103	29.9
<b>Monthly income</b>		
Less than 5000	215	62.3
5000-10000	86	24.9
More than 10000	39	11.3
<b>Patients hospitalised through:</b>		
Emergency department	156	45.2
Out-patient clinics	100	29
Health centres	26	7.5
Transfer from another hospital	46	13.4
Others	17	4.9
<b>Reasons behind hospitalisation</b>		
Medical	179	51.9
Surgery	144	41.7
Check-up	22	6.4
<b>Kind of health services provided</b>		
Therapeutic	339	98.3
Preventive	16	4.6
Educational	15	4.3
<b>Number of times patients have been hospitalised before</b>		
Non	159	46.1
Only once	74	21.4
More than once	112	32.5

Notes: Appendix 13 illustrates distribution of general information about patients in each hospital.

## 7.2 Basic information

The questions include three main points. The first one is about quality - quality concepts and quality standards and indicators. The second is about the quality systems that include questions about the characteristics, aims and plans of quality systems in



hospitals. The third is about TQM. This last one includes questions about the concepts of TQM and its importance and elements of TQM. This chapter will answer the questions related to the objectives of the study. There are four objectives: clarifying the concepts of quality from the patients' and employees' perspective, defining the characteristics of the existing system of quality in MOH hospitals, clarifying the definitions of TQM in health services from the employees' perspective and clarifying the importance of applying TQM in MOH hospitals.

### **7.2.1 What are the Concepts of Quality in Health Services?**

This question includes the first objective of the study, that is to clarify the concepts of quality from the patients and employees' perspective in Jeddah MOH hospitals.

The descriptive statistical means presented in Table 7.5 shows that patients perceive that the quality of diagnosis and treatment, art of medical care, the availability of luxurious services and availability of technical services are the main elements in their opinions. While employees perceive that the quality of art of medical care, diagnosis and treatment and availability of technical services to be the main elements. The results of diagnosis and treatment and art of medical care are in agreement with the concept and definition of quality according to Bin Saeed (1994, p.12). Patients were interested in luxurious and technical services and employees were also interested in the latest techniques (see chapter 3). Other elements of categorisation as shown in Table 7.5 were differences in its arrangement between patients and employees. These differences were related to the differences in the patients' and employees' perspective about the concept of quality such as differences in their opinions, interests and needs (Banoob, 1993, p.45).

Factor analysis was used to identify the underlying evaluative dimensions and specify items that correlated highly and that were assumed to be an "element" of the broader dimensions of concepts of quality, to identify of concepts of quality and to reduce data. Table 7.5 shows the results of factor analysis of the concepts of quality of the patients and employees questionnaire.

Table 7.5

**Patients' and Employees' Opinion about the Appropriate Concept of Quality**

Concepts of Quality*	Mean	Factor 1	Factor 2	Factor 3	Factor 4
<b>Patients</b>					
Accurate diagnosis and proper treatment	4.15			0.76	
The art of medical care	4.01		0.825		
Availability of luxurious services	3.56				0.848
Availability of technical services	3.56			0.503	
Using modern technology	3.48		0.87		
Service the maximum number of patients as possible	3.23				0.42
Suitability of health services to the Saudi environment	3.15	0.815			
Reducing the proportion of diseases, mortality and disability	3.02	0.737			
Providers knowledge of different information	2.83			0.464	
The optimal utilisation of available resources	2.81	0.74			
<b>% Of variance explained by factor</b>		<b>30.01</b>	<b>14.62</b>	<b>11.59</b>	<b>11.24</b>
<b>Employees</b>					
The art of medical care	3.88		0.922		
Accurate diagnosis and proper treatment	3.71		0.93		
Availability of technical services	3.7	0.636			
Service the maximum number of patients as possible	3.67			0.599	
Availability of luxurious services	3.54			0.751	
Using modern technology	3.35	0.582			
Suitability of health services to the Saudi environment	3.31			0.503	
Reducing the proportion of diseases, mortality and disability	3.2	0.543			
The optimal utilisation of available resources	3.11	0.797			
Providers knowledge of different information	2.78	0.638			
<b>% Of variance explained by factor</b>		<b>31.66</b>	<b>16.91</b>	<b>11.92</b>	

\* Arrangement of the element related to the concepts of quality according to the results of the mean.

The following can be observed in the results:

With a sample size of 345 patients and 450 employees the researcher achieves the required sample size for each scale. An examination of the linearity, the scatter plots for patients and employees indicate that the linearity is present. The Bartlett test of sphericity is significant at the 95% probability level ( $p= 0.00$ ) for patients and employees and thus this tool is suitable for this examination. Also, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of the overall analysis of factor is 0.57



and 0.66 for patients and employees respectively, indicating sample size adequacy. According to Kinnear and Gray (1994, p.222) KMO “should be greater than about 0.5 for a satisfactory factor analysis to proceed”. An examination of the correlation matrix indicates that a considerable number of correlations exceed 0.4 and thus the matrix is suitable for factoring. The rotated Factor Matrix indicated that the results indicate that the data does not have outliers among the variables.

Regarding the results reported in Table 7.5, rotated loading (Varimax rotation) suggested four factors for patients and three factors for employees, which accounted for a total of 67.4% and, 60.5 % of the variance of patients and employees respectively. These are acceptable results, considering that 60% is considered as a good and very acceptable lower limit (Hair *et al*, 1998, p.118).

According to the patient data, four factors are to be considered:

**Factor 1, social aspects**, accounted for 31.01% of the variance and contained three scale items which had highly significant loadings, which ranged from 0.73 to 0.81. The first item is suitability of health services to the Saudi environment. The second item is reducing the proportion of diseases, mortality and disability. The third item is the optimal utilisation of available resources. The social aspect is an important element in KSA such as providing health services that are suitable for the Saudi environment (habits, traditions and culture) and cultural environments are among the important facets of quality (see concepts of quality of Graham (1990 a) in Chapter 3), as well as utilisation of available recourses which affects the achievement of quality, especially with the declining budgets of government hospitals (see the dimension of quality in Chapter 3) and reducing the proportion of diseases, mortality and disability in society.

**Factor 2, human and technology aspects**, accounted for 14.62% of the variance and contained two scale items which were highly significant, ranging between 0.87 and 0.82. The first item is the human aspect in the health services provided, as it one of the important elements in providing health services (see chapters 3 and 5), and the second item is using modern technology, as it is the main element to provide the correct and the best health care (see definitions of quality by Graham (1990 b in Chapter 3).

Factor 3, **medical care**, accounted for 11.59% of the variance and contained three scale items which were significant, ranging from 0.46 to 0.76. The first item is accurate diagnosis and proper treatment. This element is an important element of quality that achieves patients' satisfaction, a fact that is evident in the descriptive statistics. It is considered the first request of patients and the main function of hospitals. The second item is availability of technical services and the third item is the provider's knowledge of different specialisations. The scientific knowledge of different specialisations and availability of technical services contribute to providing the correct and the best health care (see definitions of quality by Graham 1990 b; dimension of quality in Chapter 3)

Factor 4, **luxurious services and service to the maximum number of patients**, accounted for 11.24% of the variance and contained two scale items which were acceptably significant, ranging from 0.42 to 0.84. The first item is availability of luxury services as patients may judge the quality of this item. The second item is caring for the maximum number of patients as possible, since the health services are humanitarian and are necessary services and could not be delayed and the government hospitals policies aims to provide health services for all citizens.

Historically, accurate diagnosis and proper medical treatment are among the basic concepts of quality for both patients and hospital staff. Other quality dimensions contribute to the improvement of diagnosis and treatment, such as taking care of the scientific aspects and adopting modern technologies in devices, medicines and diagnosis. Also, social and humanitarian factors in the manner of treatment of the patient also contribute to better chances of medical treatment. Many of the dimensions of quality such as effectiveness and acceptability contribute to accurate diagnosis and treatment of patients.

According to the employee data, rotated loading also suggested three factors, which describe their opinions about the concepts of quality. These are outlined below.

Factor 1 is **providing a guarantee of health services**. The Varimax with Kaiser normalisation rotation suggested that five items from 0.54 to 0.79 were loaded with



the first factor. All these items are related to the provision of health services and explain 31.66% of the effective elements in the employees' quality concept. The first item is the optimal utilization of resources, as the government policies are intended to provide the best health service in hospitals at the lowest cost, as well as achieving quality and improving and reducing the cost of health services. The second item is the scientific side of the providers of health services. This aspect is one of the important components of concepts, definition and dimensions of quality. The third item is availability of technical services. The fourth item is using modern technology. The employees, such as physicians and technical staff, are usually interested in the scientific, technical and modern technology (see Bin Saeed's opinion in Chapter 3). The fifth item is reducing the proportion of diseases, mortality and disability in society as its the aim of providing health services in general.

Factor 2 is **medical care**. The Varimax with Kaiser normalisation rotation suggested two items, which had a highly significant loading, which ranged from 0.93 to 0.92. All items relating to the first factor and the second factor explain 48.57% of the effective elements in the employees' concept of quality. The first item is the human aspect of medical care. The second item is accurate diagnosis and proper treatment. These are the most important elements of quality and the main function of hospitals in meeting its objectives and the main services involved in providing care to hospital in-patients.

Factor 3 is the **social aspect**. The Varimax with Kaiser normalisation rotation suggested three items, which had acceptable significant loading, which ranged from 0.5 to 0.75. All items relating to the three factors explain 60.5% of the effective elements in the concept of quality of employees. The first item is availability of luxury services. The second item is providing health services to the maximum number of patients. Health services are sensitive, humane and necessary services for all people in the society, particularly if there was a reduction in the number of beds in government hospitals. The third item is suitability of health services to the Saudi environment, as the society and government policies prevent providing any health services that contradict the domestic habits, traditions and cultures.

5.5% of the employees added other concepts to quality. The most important of these concepts are: using moral and immoral motivations to improve employee satisfaction, conformity of health services to the national quality standards, providing

health services without discrimination between patients, concept of integration and co-ordination in presenting all types of services to the patients, comprehensive medical service (physical, psychological and social), selecting the most competent and skilled personnel with development of their capabilities to render better health services. Although these factors are not included in the definition of quality they are, however, essential in the provision of quality health services. (Notes: these concepts were not mentioned in the previous concepts of quality because it is an open question and its an answer without scales, hence it's difficult to use FA in this question).

**7.2.2 What are the Characteristics of Systems of Quality in Health Services?**

This question includes the second objective of the study, that is to define the characteristics of the existing quality system in MOH hospitals in Jeddah. A Chi square test was used to test whether there was any statistically significant differences from random between the characteristics of traditional quality (TQ) systems and TQM systems, to define whether one or other of the characteristics is being practised in Jeddah hospitals. The exploratory research prompted more robust tests to determine if the differences are significant, which variables and in which direction. Given that the respondents answered either TQ or TQM tests to detect any differences. This test was done for each of the variables.

It is difficult to compare TQM with the old quality management system such as quality control and quality assurance as usually, quality systems evolve and the old system will hopefully become a TQM system over time. The implementation of a TQM system implies top management support and implementation and thus can be compared with the previous system of quality management. In the pilot study and the main study when the researcher visited the sample of hospitals the manager of quality management said that they apply a TQM system. The main aim of this question was not to compare but to see what the characteristics of TQM exists in hospitals.

Table 7.6 presents a summary of the results.



Table 7.6

**Distribution of Responses from Employees about Characteristics  
of Quality Systems in Hospitals**

Comparison element	Old quality systems		TQM		Chi square
	Count	%	Count	%	Significance
1- Definition of customers					
-Who are customers	337	74.9	109	24.2	0.00***
-Communication with them	370	82.2	80	17.8	0.00***
2- Processes	230	51.1	220	48.9	0.63
3- Solving problems					
- Finding the problems	295	65.6	155	34.4	0.00***
-Methods of solving them	318	70.7	132	29.3	0.00***
4- Cause of problems	268	59.6	177	39.3	0.00***
5- Errors	245	54.4	205	45.6	0.06
6- Planning	262	58.2	188	41.8	0.00***
7- Improvements	250	55.6	200	44.4	0.018**
8- Performance emphasis	289	66.2	149	33.1	0.00***
9- Methods	367	81.6	78	17.3	0.03**
10- Responsibility for quality	248	55.1	202	44.9	0.00***
11- Realising quality					
- Employees	284	63.1	166	36.9	0.00***
- Quality committees	254	56.4	196	43.6	0.00***
12- Authority					
-Kind of authority	379	84.2	71	15.8	0.00***
- Decision making	377	74.9	113	25.1	0.00***
13- Services design					
-Who design	387	86	63	14	0.00***
- Information and knowledge	393	87.3	57	12.7	0.00***
14- Managers					
- Knowledge	325	72.2	125	27.8	0.00***
-Relationship with employees	398	66.2	152	33.8	0.00***
15- Productivity and quality	221	49.1	229	50.9	0.70
16- Organisation structure					
-Kind	432	96	18	4	0.00***
-Degree of flexibility	365	81.1	85	18.9	0.00***
- Relationship among departments	401	89.1	49	10.9	0.00***
- Communication	424	94.2	26	5.8	0.00***

Notes: \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\* $p \leq 0.001$ .

Table 7.6 shows that out of the 25 items (from 16 questions), only 3 items were not significant at the 5% level. The remaining 22 items showed that significantly more respondents declared their hospitals had TQ systems, not TQM systems. In no case is there significant evidence of any hospital practising TQM. In 22 items of the cases, hospitals could be described as practising TQ systems. The other 3 items are unclear, but there is no evidence that they adopt TQM. Details are provided below.

Interviews with quality supervisors indicated that some hospitals applied quality management systems and others applied a TQM system. Whatever the name of the quality system, the previous table clarified the characteristics of these systems. Table 7.6 showed that:

- 51.1% to 96% of the respondents indicated that all the characteristics of TQ system existed in their hospital quality system. The biggest percentages related to organisation structure such as kind (96%), communication (94.2%) and relationship among department (89.1%). while 4% to 48.9% indicated that TQM existed in the hospital (except the point about productivity and quality).

There is very strong evidence of statistically significant difference between applying the following characteristics of a TQ system and applying these characteristics of a TQM system in Jeddah hospitals ( $p = 0.00$ ) in the definition of customers, problem solving, cause of problems, planning, performance emphasis, responsibility of quality, achieving quality by employees and quality committees, Authority, services' design, managers and organisation structure, and in improvements and methods ( $p=0.01$ ;  $0.03$  respectively). Hence the researcher accepts these differences between TQ and TQM systems (or really the lack of TQM).

- The items that are not statistically significant are productivity and quality, process and errors. The hospital could have either or both of the systems. This means that there are no statistically significant differences between the two systems in these characteristics. However, given the general trends as shown by the percentages, one could conclude that the hospitals do not practice TQM in general.

The results show that there is a significant difference in the respondents' opinion on the systems practised at the hospitals. In general, the results show that, overall, hospitals in Jeddah do not practice TQM, but are still practising the old TQ.

A Chi-Square test was used to test if there were any statistically significant differences among hospitals and positions of employees that related to the previous characteristics. The results shows that there were statistically significant differences among hospitals as regards identifying who their customers are, communication with



them, processes, improvements, methods, responsibility for quality, authority's decision making, competence of managers ( $p = 0.01$ ;  $p = 0.05$ ;  $p = 0.01$ ;  $p = 0.00$ ;  $p = 0.00$ ;  $p = 0.00$ ;  $p = 0.04$ ;  $p = 0.05$ ;  $p = 0.00$  respectively). The results also showed that there were statistically significant differences among positions of employees for methods ( $p = 0.04$ ), degree of flexibility and the communication of organisation structure ( $p = 0.00$ ;  $p = 0.01$  respectively) (see Appendix 14).

Referring to Appendices 15 and 16, which pertain to analysis of each hospital, we conclude that the insignificant factors in all hospitals are also insignificant in each hospital separately, except the factor pertaining to processes in hospital 9 and the factor pertaining to errors in hospital 7. The factors pertaining to definition of customers, organisation structure and services' design are significant in all hospitals and in each hospital separately. These results indicated that there were similarities in the analysis of all hospitals and in the analysis of each hospital separately for some elements.

Other factors that are significant in all hospitals are significant in some hospitals and insignificant in others (see Appendix 15, 16). This may be related to the different size of hospitals, to general managerial characteristic differences in each hospital such as the management system, organisation environment, culture environment of quality and non-clinical staff.

## **Discussion:**

As is evident from the studies related to the issue in the KSA in Chapter One, there has not been any study that clarifies the characteristics of the quality system applied in Saudi hospitals. This study is the first to present the type of quality systems practised in Jeddah hospitals, an important contribution to research. More importantly, this has been demonstrated using quantitative analysis.

The results of the pilot study in 1997 indicated that there was a need to modernise the managerial systems (refer to the results of the pilot study). Al Touri's study (1998) demonstrated that the quality programmes in the KSA were at a low level and very ineffective (refer to studies pertaining to QA). Bin Saeed's study (1994) included

many reasons that negatively affected the effectiveness of the quality programmes in hospitals (see studies pertaining to QA).

Although there was a positive drive in the MOH to improve the quality in health services by applying effective quality programmes in their hospitals, the results show that the hospitals are still applying TQ systems. The following could help in explaining why the hospitals are failing to adopt the new TQM systems:

- The employees indicated that there was a centralisation of authority. Decision making depends on the knowledge of top management. The organisational structure is still hierarchical and static and departments are isolated and communication is in vertical downward channels only. The responsibility of quality depends on employees alone. This is perhaps because hospitals' management have applied the traditional management methods and systems that are found in most of the developing countries.
- The employees indicated that the hospitals' management were using reactive and inspection methods for solving the problems and for improving quality. There was no evidence of proactive actions in solving problems. Also the hospitals' management avoided looking for the cause of the problems and believed that the employees were the cause of the problems. This may be related to the fact that the hospitals have no written scientific standards, no indicators of quality, insufficient policies, and no procedures and evaluation of the health services.
- Other characteristics of quality systems that affected the TQ systems included concentration on patients and communication with them whenever there were problems, short-term planning and results, statistical methods, inspections and specialisation in achievement of quality and physicians in quality committees and specialist departments and expert knowledge in services design. This may be because of a misunderstanding in the efforts in improving quality and its importance, shortage of qualified and specialised staff in TQM, the application of a new quality system and hospital management as traditional management (see administrative problems in Chapter Two).
- Other characteristics that have no significantly statistical difference between TQ and TQM include productivity and quality, process and the hospitals' management accepted errors to a limited extent. This may be attributed to a positive drive in MOH



in KSA which began to improve the quality and limited the errors. Other characteristics may be considered as fundamental principles of a TQM system.

- Most factors that apply, according to a TQ system, are factors pertaining to definition of customers, organisation structure and services design as it is significant in all hospitals and in each hospital separately.

### **7.2.3 What are the Definitions of TQM in Health Services in MOH Hospitals?**

This question addresses the third objective of the study, which is, clarifying the definitions of TQM from the employees' perspective.

Descriptive statistics are shown in Table 7.7. The descriptive statistics show that TQM definitions from the employees' view include many elements or ideas such as the comprehensive view is related to a consideration of all medical, ancillary clinical and administrative services provided, all internal and external customers and the integrated view based on co-operation between all employees (average mean = 4). Traditional quality depends on inspection, correction of deviations (average mean = 4). Conformity of the services with quality standards (mean = 4). The idea of continuous improvements in processes, work environment and of work performance (average mean = 3.62), application of principles and tools of TQM (average mean = 3.6), customers' satisfactions include both patients and employees (average mean = 3.59), doing the right thing (mean = 3.55), cultural environment -includes interest in compatibility with cultural differences and cultural change- (average mean = 3.45) and the economic aspect represented in containing costs (mean = 3.41).

The previous definitions are in conformance with the theoretical definitions of TQM, which concentrates on the many elements that are explained in Chapter 4, and with some elements in a traditional quality management system (see Chapter 3).

Factor analysis was used to identify the underlying evaluative ideas, and to specify the items that correlate highly, which are assumed to be an "element" of the broader TQM definition. Table 7.7 shows the results of factor analysis of the appropriate definition of TQM in the employees' opinion.

According to the results, the following can be observed: With a sample size of 450 employees, the researcher achieves the required sample size for each scale. An

examination of the linearity, the scatter plots indicate that the linearity is present, the Bartlett’s test of sphericity is significant with  $p = 0.000$ , which is less than the 0.05 level, and that the Kaiser-Meyer- Olkin (KMO) measure of sampling adequacy of 0.835 was appropriate to proceed with factor analysis. An examination of the correlation matrix indicates that a considerable number of correlations exceed 0.4 and thus the matrix is suitable for factoring. The rotated Factor Matrix indicated that the results indicate that the data do not have outliers among the variables.

Table 7.7

Employees’ Opinions about the Appropriate Definition of TQM

Definitions of TQM consideration on*:	Mean	Factor 1	Factor 2	Factor 3	Factor 4
All health services provided	4.1			0.816	
The comprehensive view	3.87			0.775	
The integrated view	4.03			0.806	
Depends on inspection	4.04		0.638		
Correcting deviations from established standards	3.97		0.777		
Conformity of services to quality standards	4.01	0.817			
Doing the right thing the first time and all the time	3.55				0.704
Continuous improvement of the processes	3.36	0.744			
Continuous improvement of the work environment	3.77	0.775			
Continuous improvement of the whole work performance	3.75	0.722			
Patients’ satisfaction	3.63	0.731			
Employees’ satisfaction	3.55	0.653			
Containing costs	3.41		0.713		
Compatible with the culture difference	3.65	0.579			
Application of TQM principles	3.63	0.599			
Using of TQM suitable tools	3.57	0.665			
Change the quality culture	3.25				0.778
% of variance explained by factor		38.54	10.70	9.01	7.71

\*Arrangement of the elements related to the definitions of TQM according to the results of the mean.

In accordance with the results reported in Table 7.7, the rotated factor loading suggested four factors that explain the definition of TQM, which accounted for a total of 65.98% of the variance of employees’ opinions. These percentages are credible, since 60% is generally regarded as acceptable.



**Factor 1: Content analysis of TQM.** This definition includes lists of definable components. The Varimax with Kaiser normalisation rotation suggested that nine-scale items had acceptable significant loadings, ranging from 0.57 to 0.81. All the items relating to the content analysis of TQM definitions explain a 38.54 % of the other elements of TQM definitions. It includes the following elements or ideas:

- The first item is conformity of the services to quality standards. The availability of quality standards is an important element, especially as there were no scientific quality standards applied to government hospitals. Actually TQM is not just conforming to quality standards but extends to invention and creativity.
- The continuous improvement elements (loading ranging from 0.72 to 0.77). The element of continuous improvement in the processes, work environment and whole work performance fits in to the Japanese definition of TQM as “Kaizen”. It also agrees with many definitions of TQM as stated by Jablonski (1991) as discussed in Chapter 4.
- Customers’ satisfaction (loading from 0.65 to 0.73). Many definitions of the need to meet patient and employee needs and expectations are consistent with the findings such as Shortell *et al* (1995), which are discussed in Chapter 4.
- The practical side (loading from 0.59 to 0.66). This concentrates on applying the principles of TQM, using TQM tools. This finding conforms the work by Bin Saeed (1997) about TQM definitions (refer to Chapter 4).
- Culture environment (loading 0.57). This means the methods and procedures of application of TQM in hospitals must be compatible with the cultural differences, as the organisational environment is one of the principles of TQM.

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**Factor 2: Traditional quality system and the economical element.** The Varimax with Kaiser normalisation rotation suggested that there are three-scale items that had acceptable significant loadings, ranging from 0.63 to 0.77. The first item is correcting deviations from established standards, the second item is containing the cost and the third item is dependence on inspection. All the items related to the content analysis and the items that related to traditional quality system explain 49.24 % of the others elements of TQM definition. The idea of TQM definition relying on the methods of traditional quality management shows that the approval depends on inspection and correcting deviations in the employees’ opinion. Actually TQM is not dismissive of

traditional quality management, but was developed from it. TQM assumes that achieving quality does not depend on inspection but extends to continuous evaluation and improvement of employees' work. The matter is not just correcting deviation, but it extends to the preventive. The economic financial element that concerns optimal utilisation of available resources and containing costs. Many authors have shown interest in the cost element in the quality issue (see Chapter 3).

**Factor 3: Wide definition of TQM.** The Varimax with Kaiser normalisation rotation suggested that there are three scale items which had highly significant loadings, ranging from 0.77 to 0.81. The first item included all health services provided. The second item is the comprehensive view for the providers and beneficiaries of health services. The third item is the integrated view of the health services. All the items related to the three factors explaining a 58.26 % of the other elements of TQM definition. This factor explains the concept of TQM. The essential idea is a comprehensive and integrated view in all provided services, all providers and beneficiaries (see the concept of TQM in Chapter 4).

**Factor 4: Culture change.** The Varimax with Kaiser normalisation rotation suggested two scale items had highly significant loadings, ranging from 0.7 to 0.77. All the items related to the four factors explaining a 65.98 % of the other elements of TQM definition. The first item is to change the quality culture, many authors have shown interest in culture change, such as Zain-Al Deen (1996) and Al Nummani (1996). Changing the culture of quality is an important element in developing countries, as hospitals need a substantial and real change in their culture. One must assure that everyone in the hospital works in accordance with the concept and principles of TQM. (see Chapter 5). The second item is doing the right thing the first time. This element explains the term quality as defined by Crosby (1996) (see Chapter 4).

Some employees added other definitions to TQM such as utilisation of the available resources to perform the most possible service.

In comparing the previous elements of TQM definitions with the elements of employees' quality concept in Table 7.5, the researcher found two elements: costs and environment loading to Factor one in both TQM definition and quality concept.



Referring to the results of the pilot study (1997), the researcher found that the employees may not have the right concepts of TQM since they are just interested in knowing about cases of deviations and taking corrective actions.

In general, there were no studies in the KSA about the TQM definitions. So this study may be considered as one of the groundbreaking studies in the area of TQM definitions in hospitals of KSA.

Further tests were performed to test the independence of the factors. ANOVA tests were performed to see if there were any statistically significant differences among hospitals and the position of employees that related to the previous four factors related to TQM definitions. The results show that there were no statistically significant differences among hospitals and among positions (see Appendix 17).

#### **7.2.4 What are the Reasons that Motivate MOH Hospitals to Adopt the elements of TQM?**

The objective of this question is to clarify the importance of applying the elements of TQM in MOH hospitals in Jeddah. From the theoretical study, there were many elements of TQM (displayed in Chapter 5) which form the fundamentals of TQM and lead to improving quality in hospitals. The question is, do the hospitals need to improve their quality management system (QMS) to improve the quality of health services, and is there a correlation between the need of QMS to improve the quality and its need to apply elements of TQM?

The Correlation analysis (Spearman's test) method was used to test whether there is a correlation between the need of QMS to improve the quality of health services and its need to apply elements of TQM, between the variable (the need to improve the quality; q6.2 in Appendix 3.1) and variables (the need to apply elements of TQM; q6.1 and from q6.3 to q6.10 in Appendix 3.1), and also to arrange these variables according to significance importance.

Descriptive statistics revealed that the dependent variables show that 50%; 39.8% of the employees indicated that they agree and strongly agree respectively that the QMS in hospitals need to improve the quality of health services, that is, 89.8% of the

respondents felt that hospitals needed to improve the quality. In other words the quality management system (QMS) in hospitals need to play an effective role in improving the quality of health services in hospitals. The need to improve the quality agrees with the results of the pilot study, which pointed out the need to improve the level of quality of health services provided in government hospitals. The pilot study results also explained that TQM programmes were implemented in some hospitals but they did not result in quality improvements in most cases. This also corresponds with the importance of improving quality in the health sector, especially in developing countries such as the KSA. This is in line with the health strategy of the current Seventh Development Plan in the KSA, which is focused on developing the health services. Descriptive statistics relating to the independent variables show that between 72% and 93.3% of the employees indicated that they agree or strongly agree that the hospitals need to improve or to apply TQM elements. The mean of all elements is greater than 4, (between 4.09, 4.4), except the mean of element 8 and 9 (3.97, 3.84 respectively). There is further explanation related to the means of the elements of TQM in the next chapter.

Table 7.8

Summary of Correlation Analysis of Needs to Apply the Elements of TQM

Independent variables: QMS needs to apply elements of TQM	Dependent variable: QMS needs to improve the quality						
	1	2	3	4	5	Total	Rank
1 A comprehensive system for quality	0	6	8	3	6	23	6
2 Top management support	0	6	8	6	5	25	3
3 Improving the process	0	5	7	7	7	26	2
4 Patients' satisfaction	0	5	7	5	8	25	4
5 Employees' satisfaction	0	6	5	4	7	22	9
6 Improving the organisational environment	0	6	8	5	8	27	1
7 Improving human resources management	0	2	7	6	7	22	5
8 The optimal utilisation of available resources	0	1	7	6	7	21	7
9 Using different tools for improving quality	0	5	7	4	7	23	8

Notes: 1- (1- strongly disagree; 2- disagree; 3-unsure; 4- agree; 5- strongly agree).

2-In terms of significance correlations, element 2 and 4 are tied in rank. However, for element 2, there are five more cases (compared with element 4) where the significance is at 1% level, hence this is used to resolve the tied. 0.01 level. Also, element 9 and 1 are tied in rank. However, for element 9, there are two more cases (compared with element 1) where the significance is at 1% level, hence this is used to resolve the tied. Element 5 and 7 are tied in rank. However, for element 5, there are one more cases (compared with element 7) where the significance is at 1% level, hence this is used to resolve the tied. 0.01 level

3- More details in Appendix 18



Table 7.8 shows that there is a correlation between the need of QMS to improve the quality and each element of TQM. Also it shows the ranks to demonstrate levels of needs variation between TQM elements. The ranks show that all nine elements had significant correlations between the need of each element of TQM and the need of QMS to improve the quality. The descriptive ranking of these elements are: the need for improving the organisational environment, improving the process, supporting top management to the application of TQM, achieving patient satisfaction, using different tools for improvement, a comprehensive system for quality achievement, achieving employee satisfaction, improving the human resources management and the optimal utilisation of available resources.

The above results confirm other studies pertaining to quality in the KSA, which indicated that the quality programmes are at a low level and very ineffective. This is also confirmed in the Second Symposium of Hospital Management (1996), which focused its attention on TQM in the Saudi hospitals (see Chapter 1). Most of these results are due to the fact that the government hospitals in the KSA suffer from many problems such as: labour, administration, buildings, equipment, medical supplies, nutrition and finally the problems of the services' beneficiary (Chapter 2). Therefore, employees are looking for elements of TQM to contribute to the improvement of quality.

As is evident from the previous results, the hospitals confirmed the need to improve the QMS of their services and to apply the elements of TQM. It can therefore be concluded that the 9 variables are important in explaining the need to improve QMS with differing importance according to its ranks.

Referring to Appendix 19, and upon analysis of each hospital, we observe that ranking of the need to apply TQM elements varies from one hospital to the other and it is different from the ranking in table 7.8. For example, upon analysis of all hospitals, the first element number in all hospitals is "improving the organisation environment", which is also the first element within rank in hospitals 4 and 8 only. "Patient satisfaction" is the first element needed in hospitals 5, 6 and 7. While "improving process" represents the first needed element in hospitals 2 and 3. "The

optimal utilisation of available resources” represents the first needed element in hospital 9. Finally, the element pertaining to using tools of improving quality represents the first needed element in hospital 1, (see Appendix 19 to find out the differences in ranking other elements in each hospital).

These results indicated that there were differences in ranking of the elements in analysing all hospitals and in analysing each hospital separately. This may relate to the differences in applying TQM elements among hospitals, differences in the conviction of the importance of the elements of TQM for both top management and hospital employees. And also may be related to the newness of applying TQM programmes. Chapter 8 will show more results regarding the elements of TQM.

An ANOVA test was used to test if there are any statistically significant differences between the need to improve the QMS and applying TQM elements among hospitals and the position of employees (see Appendix 20 which includes explanations for the results).

### **7.3 Conclusion**

The data for the main study was collected from 9 hospitals, all MOH’s hospitals in Jeddah City. Many points were discussed before analysing data in the beginning of this chapter. Analysis of the data was carried out through analysing general and some of the basic information that included the objectives of the study. General information included analysing general information for hospitals of the sample, employees and patients. Analysing basic information was through answering questions. Through answering these questions, objectives were determined such as clarifying the concepts of quality, determining the characteristics of a quality system and definition and importance of TQM. The analysis of the hypotheses of the study will be analysed in the next chapter.



## **CHAPTER 8**

### **DATA ANALYSIS II (ANALYSIS OF THE HYPOTHESES OF THE STUDY)**

#### **8.0 Introduction**

This chapter continues the analysis of the data from the previous chapter. The main purpose of this chapter is to answer questions relating to the hypotheses of the study. The responses to the analysed questions will be to test the hypotheses of the study in hospitals in Jeddah. Those include the standards and indicators of quality, plans of quality systems and elements of TQM in the hospitals.

#### **8.1 Analysis of the hypotheses**

Nine hypotheses will be tested through answering many questions related to these hypotheses including the following:

##### **8.1.1 What are the Standards and Indicators of Quality in Health Services?**

This question includes the first hypothesis of the study; that is, the Jeddah MOH hospitals have standards and indicators of quality in health services. In this hypothesis the researcher will discuss three points, such as, do the employees have standards and indicators of quality (see Appendix 3.1, q 7, p.349), as well as defining the characteristics and application of these standards and indicators (see Appendix 3.1, q 8, pp.349, 350).

The first point is: are there any standards and indicators of quality in hospitals? Table 8.1 shows that 87.6 % of the respondents indicated that they do not have quality standards in their hospitals, while 92% of them indicated that they do not have quality indicators in their hospitals, the results show a high percentage of the responses who have no standards or indicators of quality. A Chi-Square test was performed to see if there was any significant difference in the existence or non-existence of quality standards and indicators in hospitals. The results show that there were statistically significant differences between those who have and those who do not have standards and indicators of quality. The value statistic was significant ( $p = 0.00$  for each).

Table 8.1  
Distribution of Responses from Employees about the  
Standards and Indicators of Quality

	Yes		No		Chi-Square Significance
	account	%	account	%	
Standards of quality	394	87.5	51	11.3	0.00***
Indicators of quality	414	92	28	6.2	0.00***

Notes: \*  $p \leq 0.05$ ; \*\*  $p \leq 0.01$ ; \*\*\*  $p \leq 0.001$

The same results were found in the analysis of each hospital (see Appendix 21). It shows that the percentages of the respondents that do not have standards for quality are high and varies between 94.3% in hospital 1 and 84.9% in hospital 4. The percentages of the respondents that do not have indicators for quality are high and varies between 98.1% in hospital 1 and 89.8% in hospital 5. Also there are statistically significant differences between those who have and those who do not have quality standards and indicators ( $p=0.00$ ).

Interviews with quality supervisors indicated that they did not apply compulsory quality standards and indicators. Any standards of quality are just due to the diligence of the employees or their departments. Quality supervisors indicated that there was no evaluation of the quality of health services, yet there was evaluation of the employees' performance every year. The evaluation of employees does not include dimensions of quality such as evaluation of effectiveness, relationship among employees and between employees and patients and interest in safety and prevention (MOH, 2000 d).

A Chi-Square test was performed to see if there was any significant difference in the existence or non-existence of quality standards and indicators among hospitals (Q1 in Appendix 3.1, p.342) and according to position (Q2 in Appendix 3.1, p.342). The results show that there was a statistically significant difference between those who have and those who do not have standards among positions of employees. The value statistic was significant ( $p = 0.003$ ). This may reflect the management of quality from the top and that some employees in some positions try to introduce some quality standards into their jobs.

Standards and indicators are correlated with all quality systems, such as quality assessment and TQM (see chapter 3 and 5). There were numerous international and



local standards and indicators but the researcher found a low percentage of the respondents who indicated that there were quality standards and indicators in their jobs.

Quality standards and indicators must have many characteristics to be effective (Roemer and Montoya-Aguilar, 1988, pp.42, 43). The second point in this part: are the standards and indicators of quality scientifically characterised? This is explained in Table 8.2, which shows the following:

- Only 11.3% of employees answered the question about the characteristics of standards. Although this percentage is low, there was also a low percentage of employees who indicated that they agree or strongly agree that the standards are scientifically characterised. Between 4.9% and 1.3% of the employee sample indicated (agree or strongly agree) that the previous characteristics exist in the quality standards. Only 6.2% of employees answered the question about the characteristics of indicators. This percentage is also low, and there was a low percentage of employees who indicated that they agree or strongly agree that the indicators are characterised scientifically. Between 4.3% and 0.6% of the employee sample indicated (agree or strongly agree) that the previous characteristics exist in the quality indicators. The low percentages may be attributed to the fact that there was no scientifically specialised authority to supervise the implementation of these standards and indicators that affects the existing scientific characteristics and inefficiency in applying it.

The third point in this part: are the standards and indicators of quality applied in the hospitals? This is explained in Table 8.2, which shows the following:

- Only 11.3% of employees answered the question about the application of standards. As indicated previously this percentage is low, also there was also a low percentage of the employees who indicated that they agree or strongly agree with being trained on its implementation etc. Just between 2.3% and 1.5% of the employee sample indicated (agree or strongly agree) that the previous applications exist in the quality standards. Only 6.2% of employees answered the question about the application of indicators. As indicated previously this percentage is low. There was a very low percentage of employees who indicated that they agree or strongly agree with being trained on its implementation etc. Just between 1.3 and

0.9% of the employees' sample indicated (agree or strongly agree) that the previous applications exist in the quality indicators.

From the previous results the researcher can indicate that the higher percentage of the employees who do not have standards and indicators, and the Chi-Square test indicated a strong evidence of statistical significance difference between those who have and those who do not have standards and indicators of quality in hospitals. Hence the researcher rejects the hypothesis that hospitals have standards and indicators of quality in health services. The pilot study also confirms that there were no standards applied in MOH hospitals. According to the MOH (1998, p.3) there were no quality standards and indicators applied in MOH hospitals. The results also indicated that a number of employees agree that they applied scientific quality standards and indicators in their jobs.

Table 8.2

**Distribution of Responses from Employees about Characteristics and Application of the Standards and Indicators of Quality**

	Standards			Indicators		
	Disagree and strongly disagree %	Unsure	Agree and strongly agree %	Disagree and strongly disagree %	Unsure	Agree and strongly agree %
<b>Characteristic:</b>						
Reliable	6	1.3	4	2	0	4.3
Applicable	5.3	1.1	4.9	2	1.3	2.9
Measurable	5.8	1.1	4.4	2.5	0.4	3.3
Specific	4	3.1	4.2	1.1	4.4	0.7
Clear	5.3	2	4	2.4	0.9	2.9
Sensitive	8.4	0.4	2.4	3.7	0.7	1.8
Updating continuously	9.1	0.4	1.8	4.3	0.7	1.3
Sufficient to the quality	8.9	0.4	2	4.4	1.1	0.6
Suitable for implementation in Saudi hospitals	8.4	1.6	1.3	4.3	1.1	0.8
<b>Application:</b>						
Explained it to employees	10	0	1.3	4.7	0	1.5
Trained on its implementation	9.8	0	1.6	4	0	2.3
Always implemented	9.8	0	1.6	4.2	0	1.8
Compare the work with standards and indicators	10.9	0	0.4	4.7	0	1.8
Benefit from the comparison results	9.3	0	2	4.2	0	2

Notes: 88.7 % of the respondents did not answer the questions related to quality standards, while 93.8% of the respondents did not answer the questions related to quality indicators.



### **8.1.2 What is the effect of the Plans of Quality Management on the Aim of Improving the Quality of Health Services in MOH Hospitals?**

This question addresses the second hypothesis of the study, “The plans of quality management lead to improvement of the quality of health services in hospitals”.

Ho: There is no relationship between improving the quality of health services in hospitals and the quality plans in MOH hospitals.

H1: There is a positive relationship between improving the quality of health services and the quality plans in MOH hospitals.

The dependent variable is improving the quality of health services, while independent variables are the quality plans in hospitals.

The hypothesis includes three points: define the objectives of the quality management system (QMS), determine the plans of TQM and determine if the TQM plans lead or do not lead to improvement in the quality and what effect the plans have in improving quality (see Appendix 3.1, q 3 and q 4, pp.343, 344).

Descriptive statistics revealed that the objectives of QMS show that 37.5% of respondents indicated that the objective of QMS is improving the quality, 33% of them indicated that the aim is quality assurance, while 29.5% indicated that the aim is quality assessment. These results indicate that the objectives of old quality management systems (assessment and assurance of quality) exist according to 62.5% of employees. In addition, the objective of TQM, which include improving the quality, may exist in some departments and some hospitals, since just 37.5% of respondents indicated they aim to improve the quality in their work.

Descriptive statistics about the TQM plans show that from 27.8% to 47.8% of the respondents indicated that they have TQM plans (agree or strongly agree), while from 42.2% to 56.4% of them indicated that they do not have these plans (see Table 8.3). Descriptive statistics also revealed that the means of all previous plans were ranged from 2.6 to 3.13. The means of all previous plans were less than 3 except the plans 2, 6 and 7. (ranged from 3 to 3.13). These results illustrate that TQM plans exist, however only in some departments and in some hospitals, and at a low level and are probably ineffective. This is concluded from the fact that the means are low; ranged

from 2.6 to 3.1. Also 52.7% to 72.2% of the respondents indicated that they do not have or they do not know about these plans.

The regression analysis method was used to test whether the independent variables, the TQM plans (11 variables as shown in Table 8.3) have an affect on the dependent variable, the objective of improving the quality To explain the relationship between Y and Xi. (see Appendix 3.1, q 3 and q 4, pp.343, 344). In this hypothesis the Linear Regression method was used between improving the quality of health services in hospitals and the quality plans in MOH hospitals (the stepwise method) (see Appendix 5).

The fitted regression line is  $Y = a + BX$ .

- $Y$  is the value of the dependent variable.
- $a$  is the intercept on vertical axis.
- $B$  is the slope of the line; it is called the regression coefficient and is an estimate of average change in y per unit increase in x.
- $X$  is the vector of independent variables (Weiss and Haselt, 1991, p.640).

Empirical results in this study only reports B's not the intercept term.

The following can be observed in the results of MLR:

- Normality of error term: With a sample size of 450 employees the required sample size for each variable. Also the normal plot of regression of standardised residuals for the dependent variable indicated a relatively normal distribution.
- Linearity: An examination of the linearity, the scatter plots indicate that the linearity is present.
- Independence of the error term: each predicted value is independent as the analysis is based on cross sectional data.
- Multicollinearity: In this study the stepwise method will be used as a solution to this problem, as it has default values for multicollinearity and will not admit variables that are a problem.
- The F- test is 8.712, with significance  $p= 0.00$ . The null hypothesis is rejected. In this way, the regression model, relating to the variation in dependent variables with variation in independent variables, is valid and the hypothesis concerned with the signs and significance elements of quality plans can be tested.
- The adjusted  $R^2$  has a value of 0.35. This means that the model explains 35% of the variation in the dependent variable. The theoretical studies stress that the element



relating to TQM plans include all the independent variables shown in Table 8.3 (see Chapter 5). 65% of the residuals related to the others plans or other elements not included and there may be further research needed into these elements.

(Notes) The previous assumptions will test in all the tests of MLR.

Descriptive statistics revealed that the dependent variables show that 37.5% of the employees indicated that they agree or strongly agree with the statement “improving quality is an objective of QMS”. While 62.5% of the respondents indicated they disagreed with that statement. Table 8.3 shows that there are two significant independent variables that influence the objective of improving the quality. There are highly significant variables ( $p = 0.00$ ) in the plan of improving human resources management and in the plan of availability of a suitable cultural environment for quality achievement.

Table 8.3  
Regression Analysis of Plans of quality

Independent variable plans of quality	Mean	Dependent variable is quality improving objective	
		Coefficients	
		B	Significance
1 Obtaining top management support for quality programmes	2.88	0.027	0.669
2 Improving work process	3	0.022	0.743
3 External customer satisfaction	2.61	-0.021	0.714
4 Internal customer satisfaction	2.79	0.000	0.998
5 Availability of suitable cultural environment for quality achievement	2.77	0.203	0.000***
6 Improving human resources management	3.01	0.16	0.002***
7 Optimal utilisation of available resources	3.13	0.091	0.18
8 Using more advanced methods for quality achievement	2.86	0.088	0.287
9 Obtaining the facilities required for quality achievement	2.8	-0.042	0.527
10 Improving the performance of the employees	2.91	-0.63	0.329
11 Using modern technology in the used equipment	2.82	-0.091	0.159

As is evident from previous results, there were objectives of QMS and plans for TQM implementation, but there were many hospitals that did not aim to improve the quality and some of their plans were at a low level and inefficient. There were two plans which were significant in influencing improvement in quality and there is a

Linear Regression between improving the quality of health services in hospitals and two quality plans in MOH's hospitals. So the researcher rejects the null hypothesis in the two previous plans. Just two plans lead to improvement in quality. This could be that the relative newness in implementing TQM in government hospital may be the cause, or other factors such as shortage of specialist staff, and many problems in applying elements of TQM that may arise in analysing TQM elements. In fact, there is a shortage of qualified and specialised staff with experience in TQM (Darbas, 1994, p.16). The researcher noticed a great shortage of TQM specialised staff in the pilot study (1997), particularly in MOH hospitals. The same was found in the main study when the researcher visited MOH hospitals. There may be a need to seek the assistance of TQM specialists working in accredited hospitals in the Kingdom to prepare plans of TQM.

From the separate analysis of each hospital (Appendix 22), it is found that the plan pertaining to "cultural environment for quality achievement" is not significant in improving the quality in any hospital although it is significant in Table 8.3, while the plan pertaining to improving HRM is significant in improving quality in hospital 4 only. There were three significant plans influencing the improvement of quality. These are plans obtaining top management support for quality programmes in hospital 6; plans of improving work process in hospital 1; and plans of optimal utilisation of available resources in hospital 7. These results indicated that there were differences in significant elements in analysing all hospitals and in analysing each hospital separately. The differences between hospitals may not be surprising, given that there were differences between the hospitals found using ANOVA. This may relate to the differences of the plans of TQM in each hospital. This may also relate to the fact that MOH does not apply compulsory strategy plan of TQM in these hospitals, to the newness of applying TQM programmes, to varying degrees of importance placed on TQM from top management and to differences in the importance of TQM in each hospital.

An ANOVA test was used to test if there were any statistically significant differences between the significance of TQM plans (in Table 8.3) among hospitals and among employees (see Appendix 23 which includes explanations for the results).



### **8.1.3 What are the Elements of TQM Applied in Health Services in MOH Hospitals?**

*Elements of TQM = top management commitment + customer satisfaction + focus on process + cultural environment + human resources + containing costs + using the TQM tools.*

In this question the researcher will test the previous elements in MOH hospitals as follows:

#### **8.1.3.1 Top Management is committed to the Implementation of TQM programmes.**

Ho: There is no relationship between the need for support of top management to the application of TQM and the elements of support of leadership to applying TQM.

H1: There is a positive relationship between the need for support of top management to the application of TQM and the elements of support of leadership to applying TQM.

This hypothesis was tested using the regression analysis method to explain the relationship between the dependent variable and the independent variables (between Y and Xi). In this hypothesis the Linear Regression method was used between the need for support of top management to the application of TQM and the elements of support of leadership to applying TQM (the stepwise method). In this model, the dependent variable is the need of top management support to the improvement of TQM (see Appendix 3.1, q 6.3, p. 344). The independent variables are 16 variables as shown in Appendix (3.1), questions from 6.11 to 6.26 (see p.345).

Descriptive statistics revealed that 42.4% of the respondents strongly agreed and 37.6% agreed, giving a total percentage of 80% of respondents being of the opinion that top management was not committed to TQM. Descriptive statistics also revealed that the means of all elements was less than 3 (between 2.22, 2.96). This means that all the elements of top management which are related to TQM are lower than expected, although the health system in the KSA aims to improve the quality of health services in government hospitals and top management play a key role in fostering TQM in hospitals. However, these results show that top management does not support TQM programmes. This could be attributed to the recent implementation of

quality programmes in government hospitals in general (see Chapter 2), the relative newness of applying TQM programmes in these hospitals as found in the pilot study, and top management’s insistence in applying the traditional system of quality as evident from the characteristics of the quality system in Table 7.6. Finally, there may be top management misunderstandings about the concepts, principles and importance of TQM, since all the executives of government hospitals were physicians. There was only one specialist of TQM in these hospitals as shown from the interviews.

According to the research results regarding the application of TQM in the Kingdom, there was no previous study about top management commitment to TQM. Bin Saeed (1994), found top management were ignorant about the concept of QA and that they do not encourage the application of QA programmes (see Chapter 1).

The following can be observed in the results of MLR:

- The F- test is 32.098, with significance  $p= 0.00$ . The hypothesis is rejected, in this way, and the regression model, relating the variation in dependent variables with variation in independent variables, is valid and the hypothesis concerned with the signs and significance elements of top management can be tested.
- The adjusted  $R^2$  has a value of 0.32. This means that the model explains 32% of the variations in the dependent variable. The theoretical studies stress that top management commitment to TQM should include all the independent variables shown in Appendix (3.1), q6.11. to q 6.26. 68% of the residuals related to the other elements not included and there may be further research needed into these elements.

Table 8.4 shows that there are seven significant independent variables that influence lack of commitment to the application of TQM.

Table 8.4  
Regression Analysis of Top Management

Independent variables	Mean	Dependent variables that TQM application needs support from top management	
		B	Significance
Mission of TQM	2.29	-1.202	0.000***
Vision of TQM	2.22	0.954	0.000***
Process	2.66	0.313	0.000***
Patient satisfaction	2.69	-0.257	0.000***
Values of TQM	2.42	0.291	0.000***
Objectives of TQM	2.53	-0.218	0.000***
Containing cost	2.96	0.145	0.002***

Notes: The Table includes only significant plans



There is a very high level of significance ( $p = 0.00$ ) for the variables: “the job has excellent clarity of mission and vision of TQM”, “interested in the process improvement and in winning patients’ satisfaction”, “job has excellent clarity of TQM values and objectives” and “interested in containing costs”. The low mean scores given to the seven elements indicate that they are considered lower than expected and have a significant influence on the hospitals’ support from top management for the application of TQM. There is a Linear Regression between top management support for the application of TQM and seven elements of support of leadership to applying TQM in MOH hospitals. So the researcher rejects the null hypothesis in the seven previous elements. Both of these independent variables are significant. The coefficients on the mission of TQM, patient satisfaction, objectives of TQM and containing costs are small. This suggests that these factors are not important in support from top management for the application of TQM.

The regression analysis method was used (the Linear Regression – enter method -) to explain the relationship between the dependent variable “the need to improve the quality; q6.2 in Appendix (3.1, p.344)” and the independent variable “the need to support the TQM application from top management; q6.3 in Appendix (3.1, p.344)”. The results show that the adjusted  $R^2$  has a value of 0.4 and the support of the TQM application from top management is a significant element in the need to improve the QMS (mean TQM system as all Jeddah hospitals began to apply this system) ( $p = 0.00$ ). So the seven previous elements are significant elements in the need to improve QMS.

As evident from previous results, there were many elements which related to top management, but at a low level and inefficient. The mean of all elements was less than 3. There were seven significant elements affecting the support of top management towards TQM and the need to improve the quality of the provided health services.

Upon analysis of each hospital separately, it was found that the significant elements indicated in Table 8.4 are significant in some hospitals. Among the most significance of these is “value”, which is significant in 5 hospitals; “objectives and mission”, which is significant in 4 hospitals; “containing the cost”, which is



significant in 3 hospitals; ‘vision’, which is significant in 2 hospitals; and finally “process” and “patient satisfaction”, which are significant in 1 hospital, (see Appendix 24). On the other hand, we concluded that the other elements pertaining to top management are insignificant in general in the analysis of all the hospitals together, but are significant in some hospitals in the separate analysis of each hospital. Among the most significance of these elements are the elements pertaining to be able “to apply TQM, quality environment, using TQM tools” as these are significant in three sample hospitals. Moreover, Appendix 24 indicates the significance relationship between the independent elements pertaining to top management and the dependent element of “need of the support of top management” is more evident and more frequent in hospitals 2 and 7 (each has 7 significant elements), hospital 6 (6 elements), hospital 8 (5 elements), (see the important relationships of other elements in Appendix 24). These differences among hospitals may be related to the differences among hospitals in applying some of the independent variables related to top management. It may be related to the fact that all hospital managers are physicians and that they have differing knowledge of management and TQM. Especially, with the newness of applying TQM in MOH hospitals and the lack of a unified plan or policy from the MOH to enable top management to apply it in these hospitals. It may also be related to differences in the facilities and competence of employees such as those specialising in TQM and non-clinical staff.

An ANOVA test was used to see if there were any statistically significant different elements of top management among hospitals and employee positions (see Appendix 25 which includes explanations for the results).

### **8.1.3.2 Customers are satisfied with the Current Quality of Health Services**

According to TQM, the term “customers” covers multiple customers, internal and external customers, as shown by many authors (related to chapter 5). However, in this study it is limited to hospital patients and employees.

*Customer satisfaction = f (patient satisfaction + employee satisfaction)*

**8.1.3.2.1 Patient Satisfaction:** Patients are considered as the primary customers in the health services (Decker and Sprouse 1992, p.172). The hypothesis is that in Jeddah hospitals, customer satisfaction is explained by the patient’s requirements and how much the patient likes or dislikes the services in evaluation of the various aspects, quality or non-quality, of health services (refer to Chapter 5).



Ho: There is no relationship between the quality level, which is realised in the hospitals and patients' requirements.

H1: There is a positive relationship between the quality level, which is realised in the hospitals and patients' requirements.

The relationship is between customer satisfaction and patient requirements. A regression analysis (the Linear Regression –enter method-) was performed on customer satisfaction, the quality level of health services provided as the dependent variable (see Appendix 3.2, q 2.101, p. 370) and patient requirements as the independent variables (see Appendix 3.2, q 2.24, p. 368).

Descriptive statistics revealed that the means for q2.24 was 2.6 and 2.65 for q2.101. From these results it is evident that the health requirements was below average, which is 3.

The regression analysis produced the adjusted  $R^2$  value of 0.18. The regression coefficient for patient requirements was significant ( $p = 0.000$ ). The Pearson correlation coefficient was significant, which means that the independent variable was linearly correlated to the dependent variable.

From these results, the conclusion is that for Jeddah Hospital patients' requirements show satisfaction. It may well be that the patients of Jeddah Hospitals have a lower level of expected requirements, and that requirements are a significant element in the quality level. This does not mean that their requirements are met, but it means that they still expect the hospital to fulfil their requirements. So the researcher rejects the null hypothesis to the effect that there was significant difference (Linear Regression Model) between the quality level, in the hospitals and patients' requirements. With respect to the employees' opinions, 68.6% of them indicated that they agree or strongly agree that hospital management encourages the focusing of attention on the patients (mean is 3.58). But 79.8% of them indicated that they agree or strongly agree that the quality management system still needs to be improved in the area of realised patient satisfaction, with mean of 4.2 for the patient satisfaction variable.

Based on the previous results, the researcher used the regression analysis between patient requirements as the dependent variable and all health services to the patients as independent variables. The health services provided include all activities provided to the patients, which include clinical and non-clinical services as shown by Hurstani (1990) and Shaheeb (1988) (Chapter 2).

**Ho:** There is no relationship between patients' requirements and the health services provided to the patients.

**H1:** There is a positive relationship between patients' requirements and the health services provided to the patients.

Dependent variable is patients' requirements (see Appendix 3.2, q 2.24, p. 368), while independent variables are all health services provided to the patients (see Appendix 3.2, q 2, pp. 367-370).

***Patients' requirements (PR) = internal and external environment + systems and work procedures + medical services + medical support services + other services effecting quality.***

Appendix 26.1 shows that there were too many variables of health services provided to the inpatients. When there are too many variables, this would adversely affect the results of regression by lowering the degree of freedom. Factor Analysis was used to reduce the health services provided so that the main elements could be constructed. The researcher used factor analysis to reduce the elements of services, and used these factors in the regression analysis.

A factors analysis was used five times for every element as shown in Appendix 26.1. These elements included the internal and external environment, system and work procedures, medical services, medical support services and other effective quality services.

The following can be observed in the results:

- With a sample size of 345 patients, the required sample size for each scale.
- An examination of the linearity, the scatter plots for patients and employees indicate that the linearity is present.



- The rotated Factor Matrix indicated that the results indicate that the data have no outliers among variables.
- An examination of the correlation matrix indicates that a considerable number of correlations exceed 0.4, thus the matrix is suitable for factoring.
- The Bartlett test of sphericity is significant at the 95% probability level ( $p= 0.00$ ) for all health services provided and thus is a suitable tool for this examination. Also, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy of the overall analysis of factor, is 0.87, 87, 0.85, 0.84 and 0.9 for internal and external environments, system and work procedures, medical services, medical support services and other services effective in quality respectively, indicating sample size adequacy. According to Kinnear and Gray (1994, p.222) KMO “should be greater than about 0.5 for a satisfactory factor analysis to proceed”.
- In accordance with the results reported in Appendix 26.1 from the five test, the rotated factor loading suggest that twenty factors explain the health services provided for inpatients in hospitals, which accounted for a total rank from 63.07% to 74.42% of patients’ opinions (These percentages are credible since 60% is generally regarded as acceptable) as follows:
  - Two factors that explain the **internal and external environment services**, which accounted for a total of 63.07% of the variance of patients’ opinions. Factor 1: External environment. The Varimax with Kaiser normalisation rotation suggested that seven-scale items had acceptable significant loadings, ranging from 0.57 to 0.81. All the items relating to the services of the external environment explain 51.38 % of the services of internal and external environment. Factor 2: Services in hospital rooms. The Varimax with Kaiser normalisation rotation suggested that five-scale items had acceptable significant loadings, ranging from 0.54 to 0.81. All the items relating to the second factor explain 11.68 % of the services of internal and external environments.
  - Three factors that explain the services relating to the **system and work procedures**, which accounted for a total of 66.87% of the variance of patients’ opinions (factors 3, 4 and 5 as shown in Appendix 26.1). Factor 3: Systems relating to improving the services. The Varimax with Kaiser normalisation rotation suggested that five-scale items had acceptable significant loadings, ranging from 0.54 to 0.86. All the items relating to this factor explain 47.44 % of the services relating to the system and work procedures. Factor 4: Systems relating to patients’



satisfaction. The Varimax with Kaiser normalisation rotation suggested that five-scale items had acceptable significant loadings, ranging from 0.47 to 0.86. All the items relating to this factor explain 11.84 % of the services relating to the system and work procedures. Factor 5: Systems relating to patient admissions and their files. The Varimax with Kaiser normalisation rotation suggested that five-scale items had acceptable significant loadings, ranging from 0.55 to 0.79. All the items relating to this factor explain 7.59 % of the services relating to the system and work procedures.

-Five factors that explain the **medical services**, which accounted for a total of 72.06% of the variance of patients' opinions. (Factors 6, 7, 8, 9 and 10 as shown in Appendix 26.1). Factor 6: Systems of medical services, accounted for 39.52% of the variance and contained eight-scale items which were acceptable significant loadings, ranging from 0.6 to 0.81. Factor 7: The doctor's ability in providing accurate diagnosis and treatment, accounted for 11.22% of the variance and contained six-scale items which were acceptable significant loadings, ranging from 0.6 to 0.82. Factor 8: The doctor's interest in following-up his/her patients and their treatment, accounted for 8.83% of the variance and contained four-scale items which were acceptable significant loadings, ranging from 0.55 to 0.68. Factor 9: The doctor's decisions to hospitalise the patients accounted for 7.58% of the variance and contained two-scale items which were acceptable significant loadings, ranging from 0.68 to 0.84. Factor 10: The doctor's dealing with patients and their family, accounted for 4.91% of the variance and contained two-scale items which were highly significant loadings, ranging from 0.84 to 0.86.

- Six factors that explain the **medical support services**, which accounted for a total of 74.42% of the variance of patients' opinions (Factors 11, 12, 13, 14, 15 and 16 as shown in Appendix 26.1) ten-scale items which were acceptable significant loadings, ranging from 0.4 to 0.8. Factor 12: Radiology services accounted for 11.62% of the variance and contained five-scale items which were acceptable significant loadings, ranging from 0.59 to 0.83. Factor 13: Pharmacy and medical report services accounted for 6.93% of the variance and contained four-scale items which were significant loadings, ranging from 0.44 to 0.77. Factor 14: Physical therapy services accounted for 6.55% of the variance and contained three-scale items which were highly significant loadings, ranging from 0.78 to 0.86. Factor 15: Laboratory services accounted for 4.95% of the variance and contained two-scale



items which were highly significant loadings, ranging from 0.66 to 0.76. Factor 16: Emergency and social services accounted for 4.05% of the variance and contained two-scale items which were significant loadings, ranging from 0.44 to 0.85.

- Four factors that explain the **other services which have an effect on quality**, which accounted for a total of 73.69% of the variance of patients’ opinions (Factors 17, 18, 19 and 20 as shown in Appendix 26.1). Factor 17: Elements related to TQM, accounted for 47.63% of the variance and contained eleven-scale items which were acceptable significant loadings, ranging from 0.6 to 0.87. Factor 18: Patients’ families and friends’ satisfaction, accounted for 13.51% of the variance and contained seven-scale items which were acceptable significant loadings, ranging from 0.64 to 0.81. Factor 19: Providing the information to the patients, accounted for 7% of the variance and contained two-scale items which were significant loadings, ranging from 0.75 to 0.87. Factor 20: The Saudi environment, accounted for 5.54% of the variance and contained three-scale items which were highly significant loadings, ranging from 0.65 to 0.76.

The researcher used multiple regression analysis. In this hypothesis the Linear Regression method will be used between patient requirements as the dependent variable (see Appendix 3.2, q 2.24, p. 368) and the previous twenty factors of health services as independent variables (the stepwise method) (see Appendix 5).

Table 8.5  
Regression Analysis of Patients’ Requirements

Independent variables	Mean	Dependent variable is PR	
		B	Significance
Systems relating to patients’ satisfaction	2.81	0.703	0.000***
Providing the information to the patients	2.86	-0.225	0.000***
Systems of medical services	2.45	0.205	0.000***
Doctors’ decisions to hospitalise the patients	3.52	0.167	0.000***
Nursing services	3.2	-0.180	0.000***
Elements related to TQM	2.6	0.145	0.000***
Doctors’ ability in provide accurate diagnosis and treatment	3.43	0.123	0.000***
Doctor’s dealing with patients and their family	3.65	-0.066	0.015**
Systems relating to improving the services	3.22	0.092	0.001***
Laboratory services	3.9	0.053	0.014**
Physical therapy services	2.42	-0.051	0.016**
Doctors’ interested in following-up their patients and their treatment	3.41	0.063	0.027**
Emergency and social services	3.01	-0.051	0.035**

Notes: The Table includes only significant elements

The following can be observed in the results of MLR:

- The F statistic was significant ( $p=0.000$ ), indicating applicability of the model.
- The regression analysis produced an adjusted  $R^2$  of 0.87. This is a high value for this type of study.

Table 8.5 shows that there are thirteen significant independent variables that influence the low level of patients' requirements (PR). There is a very strong level of significance ( $p= 0.00$ ) for eight factors. These factors are; systems relating to patients' satisfaction, providing the information to the patients, systems of medical services, doctors' decisions to hospitalise the patients, nursing services, elements related to TQM, doctors' ability in providing an accurate diagnosis and treatment and systems relating to improving the services. Also there is a very strong level of significance ( $p= 0.01$ ) for doctors dealing with patients and their family, laboratory services and physical therapy services. While the level of significance is ( $p= 0.02, 0.03$  respectively) for doctors' interest in following-up his/her patients and their treatment and emergency and social services. Both of these independent variables are significance. The coefficients on the independent variables related to information to the patients, nursing services, doctors dealing with patients and their families and physical therapy services are small. This suggests that these factors are not important determinants of patients' requirements.

The significance of systems related to patients' satisfaction and to improving services is an expected result as it is one of the services that is supposed to affect in-patient requirements. Also these results agree with Al Khatteeb's study (1987 a), which found that patients' satisfaction is influenced by some of these services such as registration procedures for new patients and dealing with the receptionists.

The significance of all factors related to the medical services may be ascribed to the fact that the patients judge quality by accurate diagnosis and the best possible treatment as seen from their concept of quality (see Table 7.5). So perhaps all the services provided by physicians become important to the patients and significant in their requirements. This result agrees with the studies by Al Hamad and Al Shouaib (1991); and Al Khatteeb (1987 a) in the KSA, which indicated that physicians play an important element in in-patients' satisfaction (refer to Chapter 1).



The significance of some of the medical support services which include nursing services, laboratory, physical services and emergency and social services is also an expected result as it is one of the important clinical services, which is supposed to affect the in-patients' requirements, for example, the nursing service is one of the most crucial services provided to the in-patients. Some results of studies in the KSA show that patients' satisfaction was affected by some elements of medical support services such as attitudes of the nursing staff and quickness of response of the nurses to the patients (see Al Khatteeb, 1987 a; Al Hamad and Al Shouaib 1991) in Chapter 1). Also for example, the importance of the emergency department as 45.2 % of the patients of the sample were hospitalized through this department.

The significance of providing information to the patients and elements related to TQM may be related to: Patients' awareness of preventative medicine, the instructions of physicians, having a preventive check up, changing the poor lifestyle and the level of patient health consciousness is a fundamental element for achieving quality and patient requirements (PR), especially in developing countries such as the KSA. This would be more evident if we took into consideration the low educational level of patients, the low level of patient knowledge about hospitalisation for doing check-ups and low levels of preventive educational health services in MOH hospitals as manifested from the general information of patients. The results of the pilot study showed that the patients were not aware of the procedures of protecting patients against disease, of changes in their health lifestyle and behaviour, the necessity to follow the instructions of doctors and going for preventive medical check-ups. Other elements of TQM, such as employee commitment and contribution to improve quality, employee co-operation, co-ordination and creativity, providing information and working through teamwork are essential elements of TQM. These elements contribute to improving the quality of health services provision and ultimately to meeting patient requirements (PR). The results of the pilot study revealed that the work in hospitals needs co-ordination, employee participation, a good information and communication system and teamwork.

The non-significance of internal and external environment services is an unexpected result. The result is unexpected because of some patients' interest in the

amenities of services (Bin Saeed, 1994, p.12). Some results of the studies in the KSA show that patient satisfaction was affected by some elements of internal environment services such as cleanliness, quiet, equipment in the patients' rooms, toilets and meals services (Al Khatteeb, 1987 a; Al Hamad and Al Shouaib 1991) (see Chapter 1).

Descriptive statistics show that the mean of the systems relating to patient satisfaction, providing the information to the patients, systems of medical services, physical therapy services and elements related to TQM were between 2.42 to 2.86. These results indicate that these services are lower than the average levels of quality. While the means of the other significant factors were between 3.01 to 3.9. These results indicate that these services are in the average levels of quality. The Pearson correlation coefficient between PR on one side and services related to systems relating to patient satisfaction, systems of medical services and elements related to TQM on the other were relatively high at 0.8, 0.63, 0.55 respectively. The Pearson correlation coefficient between PR and other significance services were not high between 0.0.014.

As is evident from the previous analyses, thirteen factors regarding health services have significant influence on the level of patient requirements. There is the Linear Regression Model between patients' requirements and thirteen factors regarding health services in MOH hospitals. So the researcher rejects the null hypothesis in the thirteen previous factors.

Descriptive statistics related to the level of quality of health services as shown in Appendix (26 .2) indicated that the means were between 2.13 and 3.79 for all health services, except for change in appointments for medical operations which was 1.99. In Appendix (26.2), the researcher divided the level of quality in health services in the hospitals to five groups. Group one (very poor), group two (poor), group three (average), group four (good) and group five (very good). Appendix (26.2) shows the highest and the lowest percentage of patients' answers regarding the level of quality of all services provided in the hospitals. The results show that the highest percentages are between average and good, nothing is categorised as poor, very poor or excellent, except for the hospital's ability to identify the requirements of patients' families and



friends as the highest percentage of patients indicated that it is poor (for more details see Appendix 26.2).

Pursuant to the results of the pilot study about the level of quality, and according to the patients, there were different levels of quality in the various services provided by the sample hospitals. Their classification of these services ranged from 'excellent' to 'very poor'. There were some health services perceived as 'excellent' and 'very poor'. Hospital organisation and cleanliness were perceived as 'excellent'. Prevention from disease, using a preventive method of medical examination and social services were perceived as 'very poor'.

### **Patients' Contribution to the Selection and Evaluation of Health Services**

Descriptive statistics pertaining to whether the patients order the kind of food served to them show that 77.4% of the respondents do not select their food, while 78.8% of the respondents do not explain their requirements, 66.7 % of them do not explain their problems in hospitals and 60.3% of them do not evaluate the health services. On the other hand, 65.2% of the respondents purchase some of the medicines and medical materials (see Appendix 3.2, q 3, pp. 370, 371). The mean of the level of patients' requirements (PR; q2.24 in Appendix 3.2, p.368), 2.6, is less than average.

An ANOVA test was used to see the effects of independent variables which are shown in Table 8.6, on the patients' requirements (PR). The objective was to determine if there was any significant difference in the level of satisfying the patients' requirements between those who were requested to select, explain, purchase and evaluate the health services only once, more than once and none. The LSD test was used. The dependent variable was PR. The independent variables are shown in Table 8.6.

Ho: mean (group 1- once-) = mean (group 2- more than once-) = mean (group 3- non-)

**Table 8.6**  
**ANOVA test between PR and Patients' Involvement in Health Services**

Independent variables:	Dependent variable is PR		LSD test	
	F	Significance	Mean differences	Significance
Order the kind of food 3        1	3.324	0.037**	0.58	0.013**
Explain the specifications of the required services 2        1 2        3	8.335	0.000***	-0.69 -0.76	0.011** 0.000***
Explain the problems 2        3	10.497	0.000***	0.7	0.00***
Purchase some of the medicines and medical materials 3        1 3        2	14.224	0.000***	-0.6 -0.72	0.00*** 0.00***
Evaluate the health services provided 2        1 2        3	10.669	0.000***	-0.8 0.65	0.000*** 0.000***

The F statistic was highly significant ( $p = 0.00$ ) except for 'order the kind of food' ( $p = 0.03$ ). So the results showed that there was a statistically significant difference between those who requested to select, explain, purchase and evaluate the health services only once, more than once and not at all. The LSD test showed that there were statistically significant differences between those who never requested (group 3) and those who requested more than once (group 2) in all the independent variables (except for ordering food) as shown in Table 8.6 ( $p = 0.00$ ). Also there was a statistically significant difference between those who never requested and those who requested just once the kind of food and purchased some of the medicines and medical materials as shown in Table 8.6 ( $p < 0.05$ ,  $p \text{ value} = 0.013$ ,  $= 0.00$  respectively). In addition, there was a statistically significant difference between those who requested more than once and those who requested just once in explaining the specifications of the required services and in evaluating the health services provided as shown in Table 8.6 ( $p < 0.05$ ,  $p \text{ value} = 0.011$ ,  $= 0.00$  respectively). So the researcher rejects the null hypothesis and accepts the alternative hypothesis between group 3 and group 2 except for ordering food, and between group 3 and group 1 in ordering food and in purchasing some of the medicines and medical materials. Also between group 2 and group 1 in explaining the specifications of the required services and in evaluating the health services. This means that the satisfaction of patients' requirement (PR) was lower than expected and dependent on the management who



asked or did not ask patients to select, explain and evaluate the health services. This is an important finding that will be further discussed as follows:

- In “selecting the kind of food”, the percentage confirmed this result. Here, the percentage of the responses of group 3 was (77.4) and higher than the response of group 1 (7.8). Patients do not select the food and this may be ascribed to the fact that patients must eat the food recommended by their physicians or there is no choice of menu. On the other hand, they can select the food that is suitable for them. Such an arrangement may contribute to an improvement of their feeling of well-being.
- In ‘explaining the specification of the required services, problems and evaluating the health services provided’ between group 3 and group 2, the percentages of the responses of group 3 were (78.8, 66.7, 60.3 respectively) and they are higher than the responses of group 2 (12.5, 20, 20.3 respectively). Between group 2 and group 1 in ‘explaining the specification of the required services and evaluating the health services provided’, the percentages of the responses of group 1 were (8.7, 19.4 respectively) and they are lower than the responses of group 2. In general, patients in relation to the previous points do not participate in meeting their needs. Non-participation may be due to the fact that hospitals argue that patients cannot judge some health services (Decker and Sprouse, 1992, p.172), and in the absence of competition as the MOH hospitals provided free services. The results of the pilot study also found that the hospital’s management does not offer patients the choice of different services.
- In ‘the patients’ purchase of some medicines and medical materials’ between group 3 and 1, 2, the percentages of the responses of group 3, 2 and 1 were 34.8, 39.4, 25.8 respectively). Perhaps this is because the government hospitals suffer from a shortage in their budgets and their management requests that patients purchase some of their own medicines and medical materials as 65.2% of the patients indicated in their responses to the questionnaire, especially when it is expensive.

### **Patients Problems**

Ho: There is no relationship between patients’ requirements and patients’ problems.

H1: There is a relationship between patients’ requirements and patients’ problems.

The regression analysis method was used to test whether the independent variables, the patients’ problems (7 variables as shown in Table 8.7) are affected by the dependent variable (PR), and to explain the relationship between Y and Xi, between independent variables and the dependent variable (see Appendix 3.2, q 3 and q 2.24, p. 371, p.368 respectively). In this hypothesis the Linear Regression method was used between patients’ requirements and patients’ problems (the stepwise method).

Table 8.7

Regression Analysis of Patients’ Problems

Independent variables: patients problems	Dependent variable is PR	
	B	Significance
Waiting time before making an appointment was long	-0.262	0.017**
The medical devices sometimes did not function	0.007	0.931
Waiting time before examination was long	0.168	0.06
The doctor did not take enough time for consultation and diagnosis	0.226	0.009***
The employees did not always stay in their offices	-0.196	0.022**
Some medicines were not available in the hospital’s pharmacy	-0.095	0.264
Some medical services were not available in the hospital	-0.076	0.434

Descriptive statistics revealed that the mean of the level of patients’ requirements (PR) is 2.6, which is less than average. This indicates that these patients’ requirements were at a low level as well. The descriptive statistics relating to the patient's problems in the hospitals shows that the means for the respondents were more than 3 (between 4.04 and 3.37). The descriptive statistics also shows that 79.1%, 74.5%, 64.1% of patients indicated that they agree or strongly agree that they found that some medicines were not available in the hospital’s pharmacy, some medical services were not available in the hospital and the waiting time before examination was long respectively. While 57.1%, 65.2%, 55.7%, 45.5 % of patients indicated that they agree or strongly agree that they found that the doctor did not take enough time for consultation and diagnosis, the medical devices sometimes did not function, waiting time before making an appointment was long and the employees did not always stay in their offices, they could be somewhere else in the hospital. However, some studies revealed that there is a weakness in employee supervision and that some employees



leave their hospital workplace during working hours, such as some physicians working in other private hospitals.

In addition to the above-mentioned problems, some patients mentioned other problems. These included the ineffectiveness of the doctor in explaining the patient's case explicitly to him/her, visiting times, favouritism in the system and discrimination in the dealing of Saudis and non-Saudis in favour of Saudis. From the patients' point of view, quality depends on providing suitable clinical and non-clinical services so any shortage in providing them affects many problems that face the patients as shown in Table 8.7. The existence of many problems facing patients may be because there are many problems that are faced by the MOH hospitals such as the labour force, administration, buildings, equipment, medical supplies and nutrition problems (see Chapter 2). The pilot study showed that the patients indicated that they faced the same problems, which are shown in Table 8.7. In employees' opinion, 32.7% of them indicated that they agreed or strongly agreed, 50.6% of them indicated that they disagreed or strongly disagreed and 16.7% were unsure, that there were effective systems in place for solving the patients' problems, with mean of 2.66.

The following can be observed in the results of MLR:

- F- test is = 4.44; significance  $p = 0.00$ . In this way, the regression model, relating the variation in the dependent variable with the variation in independent variables, is valid and the hypothesis concerned with the signs and significance problems can be tested.
- Adjusted  $R^2$  of 0.06, which is rather low. Results should therefore be treated with caution. As is evident from the previous results, there were many problems facing patients in hospitals, and some variables explained the PR, while some did not.

Table 8.7 shows that there are three significant independent variables that influence the low level of the patients' requirements (PR). There is highly significant ( $p = 0.00$ ), in that physicians did not give enough time to their patients. While waiting a long time before being hospitalised was significant at the 0.01 level the employees not being available during office hours was significant at the 0.02 level. The coefficient on the waiting time before making an appointment is small. This indicates that this factor is not important determinants of patients' requirements.

Some previous studies indicated that some patients' problems affected the patients' satisfaction such as waiting time, meal services, procedures for registration of new patients, the attitude of the receptionist and communication between patients and their physician (see Chapter 1). The reliability analysis relating to the patients' problems, using Cronbach's alpha value, indicated more evidence of reliability, as  $\alpha = 0.9$  and alpha if item deleted between 0.9 – 0.8 (see Appendix 6). This value indicated that there is a high correlation between the items of factors employed and showed the reliability of the questions. The hypothesis is rejected for three significant problems, which are: physicians did not give enough time to their patients, employees were not available during office hours and waiting a long time before being hospitalised.

All elements pertaining to the health services presented to patients and the problems that faces the patients that have a significant relationship with PR, which are shown in Tables No. (8.5, 8.6 and 8.7), were concluded to be significant in some hospitals upon the separate analysis of each hospital, except elements pertaining to 'doctors' decisions to hospitalise the patient, explaining the specifications of the required service, emergency and social services, doctors do not take enough time for consultation and diagnosis, and employees do not always stay in their offices.

Among the most significance variables in analysing hospitals in general and also in analysing each hospital separately, is accurate diagnosis and treatment - significant in 6 hospitals-; rooms' services - significant in 5 hospitals, systems pertaining to admission of patients to hospitals - significant in 4 hospitals (see Appendix 27). Appendix 27 indicates that there are other elements that are significant only upon analysing each hospital separately; these are patient's families and friends satisfaction are significance in hospitals 3 and 5; breakdown of some devices sometimes in hospital 5, non availability of some medicines and medical devices in hospital 5. Moreover, Appendix 27, which explains the relationship between the independent variables pertaining to the satisfaction of patients and dependant variable PR, indicates that the biggest number of significant independent variables are in hospital 5 (8 variables), hospital 9 (7 variables), hospitals 1,4 and 7 (6 variables).

The difference in results between analysing all hospitals and in each hospital in some elements of health services, may be related to the differences in the level of



quality of these services, in the interest of achieving patients' satisfaction, in applying programmes of TQM, in the abilities of and the competence of the employees, especially the physicians in each hospital.

An ANOVA test was performed to see if there were any statistically significant differences in the mean of the health services provision, patients' opinion and patients' problems (in Tables 8.5,8.6 and 8.7) among hospitals (see Appendix 28 which includes explanations for the results).

#### **8.1.3.2.2 Employee Satisfaction**

Ho: There is no relationship between the quality management system needed to realise employees' satisfaction and the elements of employees' satisfaction.

H1: There is a positive relationship between the quality management system needed to realise employees' satisfaction and the elements of employees' satisfaction.

This hypothesis was tested using a regression analysis method to explain the relationship between the dependent variable and the independent variables (between Y and Xi). In this model, the dependent variable is TQM needed to realise employees' satisfaction (notes: all the hospitals began to apply TQM). The independent variables are the elements of employees' satisfaction, The independent variables are 7 variables as shown in Table 8.8. (see also Appendix 3.1, q 6.6, p. 344, and q 6.27 to q 6.32,; q6.34, p.345). ). In this hypothesis Linear Regression method was used between the quality management system needed to realise employees' satisfaction and the elements of employees' satisfaction (the stepwise method).

The descriptive statistics revealed to the dependent variable shows that 45.3% of the respondents strongly agreed, 31.1% agreed, giving a total percentage of 76.4% of respondents and the mean of this element is 4.07 having the opinion that quality systems were not achieving employee satisfaction. The descriptive statistics revealed to the elements of employees' satisfaction (q6.27 to q 6.32; q6.34) shows that the means of all elements was less than 3 (between 2.26 and 2.59) except the element about the employee concerning himself with fulfilling the wishes of consumers in his work, which is 3.1 (q6.34). This means that all elements of employees' satisfaction, which are related to QMS are lower than expected. However, TQM uses a broader

meaning of the customer to cover all employees and an interest in knowing and realising their needs and expectations and commitment to taking care of them and interacting with them. But the previous result shows that the hospital management is not achieving the elements of employee satisfaction. This is possibly attributed to many administrative problems such as that the hospitals are still operating in a traditional administrative manner, deficiency in the decentralisation of the management and in the levels of wages, motivations in the MOH hospitals. Also it may be because of a misunderstanding of the concept, principles and importance of TQM (see Chapter 2). The pilot study results showed that there is a need to increase awareness about quality amongst the employees.

The following can be observed in the results of MLR:

- The F- test suggests a very low probability that the regression coefficients are equal to zero. The hypothesis is rejected, in this way, and the regression model, relating the variation in dependent variables with variation in independent variables, is valid and the hypothesis concerned with the signs and significance elements of employee satisfaction, can be tested.
- The adjusted  $R^2$  has a value of 0.19. This means that the model explains 19% of the variation in the dependent variable. The theoretical studies suggested that the variables in employees' satisfaction should include all the independent variables shown in Table 8.8 (see Chapter 5). 81% of the residuals related to other elements are not included and there may be a need for further research into these elements. There are a number of factors that effectuate the improvement of employees' satisfaction, which are pertaining to other fields such as social and psychological sciences, which are beyond the scope of this study. Moreover, there are some other TQM factors, such as culture environment, and HRM, which may effect the satisfaction of the employees, but these effects will not be discussed in this research as its objective was set before conducting the study of the relationship between TQM factors and improving quality.

Table 8.8 shows that there are two significant independent variables that influence the lack of employees' satisfaction. These elements are the hospital endeavours to realise the expectations of employees and willingness to interact with employees ( $p=0.00$ ; 0.02 respectively). This means that these elements are lower than expected and have a significant relationship with the needs to realise employee satisfaction. So the researcher rejects the null hypothesis in the previous element.



The regression analysis was used (the Linear Regression method -the enter method- will be used) to explain the relationship between the dependent variable “the need to improve the quality; q6.2 in Appendix (3.1); p.344” and the independent variable “the need to realize employee satisfaction; q6.6 in Appendix (3.1), p.344”. The results show that the adjusted  $R^2$  has a value of 0.4 and the need to rely on employees’ satisfaction is a significant element in the need to improve the QMS as ( $p=0.00$ ). So the two previous elements are significant elements in the need to improve QMS. These elements include knowing and meeting the needs/expectations of the employees, interacting with them and making them aware of meeting the needs of the customers.

Table 8.8

Regression Analysis of Employees’ Satisfaction

Independent variables: hospitals	Dependent variable is employee satisfaction	
	B	Significance
Knowing employees’ needs	-0.044	0.493
Knowing employees’ expectations	-0.095	0.164
Taking care of employees	0.051	0.513
Keen to interact with employees	0.133	0.021**
Achieving the needs of employees	0.021	0.759
Realising the expectations of employees	0.186	0.001***
The employee concerns himself with fulfilling the wishes of consumers in his/her work	0.068	0.207

Upon the analysis of each hospital separately, it is found that the significant variables indicated in Table 8.8 are significant in some hospitals. The variable “knowing employees needs” is significant in hospital 3 only; the variable pertaining to “realising the expectations of employees” is significance in hospital 7 only. While there are variables that are significant when analysing each hospital separately such as: “knowing employees expectations” and “keen interaction with employees” significant in hospital 4. Perhaps this related to the differences in HRM among hospitals, in the application and importance of TQM elements such as employee satisfaction.

An ANOVA test was performed to see if there was any statistically significant difference in hospital keenness to interact with employees and endeavours to realise the expectations of employees among hospitals and employee positions. Among

employee positions, the results show that there were no significant differences ( $p = 0.477$ ;  $0.134$  respectively). Among hospitals the results show that there were significant differences ( $p = 0.001$ ;  $0.006$  respectively). LSD test results show that there were significant differences among hospitals in the services of:

-The hospital willingness to interact with employees between hospital 4 and hospitals 6 and 8 ( $p = 0.02$ ;  $0.01$  respectively), the mean of hospital 4 = 2.94 is higher than the mean of hospital 6 and 8 (mean = 2.43; 2.41 respectively). Between hospital 9 and hospitals 1,2,3,4,5,6 and 7 ( $p = 0.01$ ;  $0.00$ ;  $0.00$ ;  $0.00$ ;  $0.00$ ;  $0.04$ ;  $0.00$  respectively), the mean of hospital 9 = 1.96 is lower than those of other hospitals.

-The hospital endeavours to realise the expectations of employees between hospital 9 and hospitals 6 and 7 ( $p = 0.00$ ), the mean of hospital 9 = 1.98 is lower than the means of hospitals 6 and 7 (means = 2.55; 2.6 respectively). Between hospital 5 and hospitals 1,2,3,4,8 and 9 ( $p = 0.01$ ;  $0.02$ ;  $0.00$ ;  $0.00$ ;  $0.01$ ;  $0.00$  respectively), the mean of hospital 5 = 2.48 is higher than the means of others hospitals.

#### **8.1.3.3 Hospitals' Focus on the Quality Process of Health Services.**

Ho: There is no relationship between the need for improving the process and the elements of improving the process to applying TQM.

H1: There is a positive relationship between the need for improving the process and the elements of improving the process to applying TQM.

This hypothesis was tested using a regression analysis method to explain the relationship between the dependent variable and the independent variables (between Y and Xi). In this model, the dependent variable is the TQM needed to improve the process (q6.4 in Appendix 3.1, p.344). The independent variables are 30 variables as shown in Appendix (3.1), questions from 6.36 to 6.65, (on pp. 345- 347). In this hypothesis the Linear Regression method was used between the need for improving the process and the elements of improving the process to applying TQM (the stepwise method).

The objective of this section is to determine which variables are significance in the hospitals' desire to focus on the quality process in health services. The well-established variables of the process explicitness, co-ordination, TQM elements, continuous improvement of the process and systems, were treated as dependent variables (individually). There were too many variables in the process. When there are too many variables, this would adversely affect the results of regression by



lowering the degree of freedom. So five regressions with each of these independent variables were performed. The dependent variable and the corresponding independent variables that were found to be significant were shown in Table 8.9.

**Table 8.9**  
**Regression Analysis of the Process**

Independent variables	Dependent variable is process					
	Mean	Adju- -sted R <sup>2</sup>	ANOVA		Coefficients	
			F	Signi- fican- ce	B	Significa- nce
<b>1-Explicitness</b>		0.018	5.102	0.006		
-There are explicit work methods to assist you to realise quality	2.2				0.135	0.006***
-There are explicit work policies to assist you to realise quality	2.07				-0.109	0.025**
<b>2-Co-ordination</b>		0.062	14.728	0.000		
- The hospital needs to co-ordinate the various process	3.84				0.241	0.000***
-The hospital needs to co-ordinate steps within the process	3.94				-0.109	0.019**
<b>3-TQM elements</b>		0.061	8.28	0.000		
- The processes need to account for improving the human resources management	3.19				0.314	0.000***
-The processes need to employ TQM tools	2.36				0.160	0.002***
-The hospital was not interested in patient's satisfaction when determining the processes	3.34				-0.193	0.004***
- The processes need to improve the organisational environment	3.96				0.102	0.041**
<b>4-Continuously improving the process</b>		0.192	27.678	0.000		
-Teamwork is an important element in the evaluation of the processes	3.8				0.547	0.000***
- Employees are interested in the continuous improvement of the processes in their jobs	3.93				-0.356	0.000***
-The continuous improvement of processes carried out through teamwork	2.85				-0.177	0.000***
-The hospital management included their employees in designing processes	3.37				-0.177	0.010**
<b>5-Systems</b>		0.177	25.2	0.000		
- There is an integrated system of incentives acceptable by the employees	4.24				0.231	0.000***
-The performance evaluation system serves the TQM	2.95				0.174	0.000***
-The hospital uses performance evaluation to determine the effective trends of quality improvement	3.14				0.120	0.009***
-The hospital uses modern managerial methods	2.42				0.110	0.020**

**Note:** The Table includes only significant elements

Descriptive statistics revealed that 36.2% of the respondents strongly agreed and 51.6% agreed, giving a total percentage of 87.8% of respondents having the opinion that the QMS are needed to improve the process. From the descriptive statistics, the researcher also find that the means for explicitness and systems are less than 3, (2.24, 2.99 respectively). The mean of co-ordination is 3.59 and that of TQM elements is 3.34, showing that the respondents 'strongly agreed' and 'agreed' that the hospitals need co-ordination and should be interested in applying TQM for process. This seems to imply that all the previous elements are lower than expected, except the element about continuous improving of the process, with mean of 3.42, having the opinion that this element is more than average.

Although TQM focuses on analysing and improving every process in hospitals and provides many models such as FOCUS, PDCA, FADE (see Chapter 5), these results show that the QMS in hospitals needs to improve its process. Most of QMS's elements are lower than average except continuous improving of the process. Perhaps this is because MOH hospitals suffer from acute shortages in TQM skills and ability of administrative staff, shortages in training in administration and administrative techniques and poor information systems. Also this may be related to insufficient policies and procedures for operations, especially the formal procedures (refer to Chapter 2) and insufficiency in applying quality standards and indicators of health services (see Table 8.1). The situation leads to variations and difficulty in the evaluation, supervision and solving of problems, which affects improvements in the process of health services.

The following can be observed in the results of MLR:

- The F-test and significance for all elements of the process shows that the regression model, relating the variation in the dependent variable with the variation in independent variables, is valid and the hypothesis concerned with the significant elements of quality process can be tested.
- The adjusted  $R^2$  has a value of 0.018, 0.062, 0.061, 0.192, and 0.177 for explicitness, co-ordination, TQM elements, continuous improving process and system respectively. This means that the model of explicitness, co-ordination, TQM elements, continuous improving process and system explains (1%, 6%, 6%, 19%, 17% respectively) of the variation in the dependent variable. The residuals of the



previous elements related to other elements were not included and there may be further research needed into these elements. Theoretical studies suggest that the process must include all the independent variables shown in Table 8.9 (see Chapter 5).

Table 8.9 also shows that there are sixteen significant independent variables that influence the need to improve the process. There is a strong significance ( $p= 0.00$ ) in: there are explicit work methods to assist employees to realise quality, the hospital needs to co-ordinate the various process, the processes need to account for improving the human resources management and to employ TQM tools, the hospital was not interested in patients' satisfaction when determining the process, teamwork is an important element in the evaluation of the processes, employees are interested in the continuous improvement of the processes, the continuous improvement of processes carried out through teamwork, there is an integrated system of incentives acceptable by the employees, the performance evaluation system serves the TQM and the hospital uses performance evaluation to determine the effective trends of quality improvement. The 5% level of significance was found in: explicit work policies to assist employees to realise quality, the hospital needs to co-ordinate steps within the process, the processes need to improve the organisational environment, the hospital management included their employees in designing processes and the hospital does not need to use modern managerial methods ( $p = 0.02; 0.01; 0.04; 0.01; 0.02$  respectively). These results mean that these sixteen elements have a significant influence on the need for hospitals to improve the process and are lower than expected, except the elements about the process need to employ TQM tools, the continuous improvement of processes carried out through teamwork, the performance evaluation system serves the TQM and the hospital does not need to use modern managerial methods. The coefficients on the independent variables related to work policies, the co-ordination of steps, interest in patient satisfaction and in continuous improvement of the process through teamwork and the participation of staff in designing the process indicate that these factors are not important in improving the process. The above results may be due to the fact that the characteristics of traditional quality systems are still dominant in MOH hospitals (refer to Table 7.6), the newness of the application of TQM in hospitals and the lack of support of top management to TQM.

Referring to the research that related to the applications of TQM in the Kingdom, there were no previous studies into the process of TQM, but in general there are studies pertaining to quality in the KSA. These later studies indicated that the quality programmes are poor and very ineffective. This also confirms the results of the pilot study, which raised the issue of the need to improve work procedures, simplification, excluding productive activities, modernising the managerial systems and co-ordination.

When analysing each hospital separately, it is found that the independent significant variables mentioned in Table 8.9 are significant in some hospitals, except the variable pertaining to: “the hospital’s management should involve its employees in evaluation of the processes” (see Appendix 30). The variables “The processes needed to account for improving HRM and teamwork is important in evaluation of the processes”, are significant in 4 hospitals of the sample.

Appendix 30 indicates also that there are 11 independent variables that are significant in some hospitals just in analysing each hospital, the variables “meetings to discuss processes that enhance CQI” (significant in 4 hospitals); “CQI of process is carried out through gradual progress in the improvement” (significant in 3 hospitals). Moreover, Appendix 30 indicated that there is significant relationship between the independent variable related to the process and the dependent variable “need to improve process”, is more evident and frequent in hospital 9 (12 variables).

These differences among hospitals may relate to the differences among hospitals in applying some of the independent variables related to the process, in the importance of applying TQM elements (see Table 7.7), in the plans of applying TQM and its influence in improving the quality (see Table 8.3), in the characteristics of quality management system (see Table 7.6), the newest of applying TQM in MOH hospitals and there was no unified application process from MOH in these hospitals.

An ANOVA test was performed to see if there were any statistically significant differences of process elements amongst hospitals and positions of employees (see Appendix 31 which includes explanations for the results).



#### **8.1.3.4 The Cultural Environment in the Hospital is Conducive to the implementation of TQM.**

**Ho:** There is no relationship between the need to improve the cultural environment and the elements to improve the cultural environment to the implementation of TQM.

**H1:** There is a positive relationship between the need to improve the cultural environment and the elements to improve the cultural environment to the implementation of TQM.

This hypothesis was tested using the regression analysis method to explain the relationship between the dependent variable and the independent variables (between Y and Xi). In this model, the dependent variable is: 'QMS needed to improve the cultural environment' (q6.7 in Appendix 3.1, p.344). The independent variables are 39 variables as shown in Appendix (3.1), questions from q 6.66 to 6.104 (on pp.347, 348). In this hypothesis the Linear Regression method was used between the need to improve the cultural environment and the elements to improve the cultural environment to the implementation of TQM (the stepwise method).

The objective of this section is to determine the impact of cultural environment on the implementation of TQM. Cultural environment =  $f(\text{organisational environment} + \text{knowledge} + \text{patience} + \text{environment element} + \text{decision-making} + \text{prevention} + \text{information})$ .

There were too many variables in the cultural environment. When there are too many variables, this would adversely affect the results of regression by lowering the degree of freedom. So regression will be used several times (seven) for every element as shown in Table 8.10. That is, the dependent variable is the need to improve the cultural environment, while each of the 7 variables mentioned above is treated as a dependent variable with the respective variables as independent variables. Table 8.10 presents the results of the analysis.

Table 8.10

Regression Analysis of the Cultural Environment

Independent variables	Dependent variable is culture environment					
	Mean	Adjusted R <sup>2</sup>	ANOVA		Coefficients	
			F	Significance	B	Significance
<b>Organisational environment</b>		0.031	8.275	0.000		
1-Involves all employees	2.64				0.258	0.000***
2- No conflict between the medical and administrative staff	2.78				0.191	0.003***
<b>Knowledge</b>		0.036	17.868	0.000		
3-Quality culture	3.28				-0.196	0.000***
<b>Patience</b>		0.01	5.64	0.018		
4-Employees patience	3.61				-0.112	0.018**
<b>Environment element</b>		0.08	4.682	0.031		
5-Favouritism	3.19				-0.102	0.031**
<b>Decision-making</b>		.071	7.832	0.000		
6-Decisions are based on creating opportunities for improvement	3.39				-0.236	0.000***
7-Doing the right thing	3.57				0.149	0.014**
8-Decisions are based on facts	3.64				0.142	0.004***
9-Decisions depend on updated information	3.34				-0.184	0.007***
10- Employees have perfect understanding of the steps of their work	3.16				0.130	0.037**
<b>Prevention</b>		0.145	11.861	0.000		
11-Employees do not delay some work	2.52				-0.277	0.000***
12-The hospital considers the definition of problems as an opportunity for improvement	2.91				-0.214	0.000***
13-The hospital management solves the problems after their occurrence	2.83				-0.237	0.000***
14- Employees avoid errors in the future	3.33				-0.295	0.000***
15- Employees search for opportunities for improvement in their work	3.32				0.124	0.035**
16-The hospital management removes the reasons for errors prior to their occurrence	2.94				0.173	0.006***
17-The hospital management instill the notion of protection in the minds of all the employees	3.65				0.139	0.016**
<b>Information</b>		0.152	14.411	0.000		
18-Provides the information required for improvement of quality	2.82				-0.319	0.002***
19-Trains on how to use information	2.75				0.472	0.000***
20-Provides the information needed to apply TQM	2.76				-0.311	0.003***
21-Provides the complete information	2.67				0.272	0.000***
22-Provides the new information	2.62				-0.234	0.001***
23- Excellent information system	3.05				-0.124	0.038**

Note: The Table includes only the significant elements

The following can be observed in the results of MLR:



- The F test and significance for all elements of the cultural environment show that the regression model relating the variation in the dependent variable to variation in independent variables is valid and the hypothesis concerned with the significance of the elements of cultural environment can be tested.
- The adjusted  $R^2$  has a value of 0.031, 0.04, 0.01, 0.08, 0.071, 0.145 and 0.152 for organisational environment, knowledge, patience, environmental element, decision-making, prevention and information respectively. The value for each element is rather low. However, the residuals of the previous elements related to other elements are not included and there may be further research needed into these elements. Theoretical studies stress that the cultural environment must include all the independent variables shown in Table 8.10 (see Chapter 5).

The descriptive statistics show that 36.9% of the respondents strongly agreed and 46.2% agreed, giving a total percentage of 83.1% of respondents having the opinion that QMS are needed to improve the cultural environment. Table 8.10 shows the means and significance levels, which are related to the independent variables as follows:

**-Organisation environment:** Descriptive statistics show that the mean of all elements of organisation environment is less than 3 (2.67). This implies that all the elements are lower than expected. As hospitals do not involve all employees in quality activities, the conflict between medical and administrative staff cannot be easily resolved, as there is a knowledge gap between these two categories of staffs. This gap can be reduced by the formation of TQM teams involving the entire spectrum of employees within hospitals.

Table 8.10 shows that there are two significant independent variables that influence the need for QMS to improve the organisational environment. There is a strong significance ( $p= 0.00$ ) in these two variables that include involving all employees in quality activities and conflict between medical and administrative staff.

The unsuitability of the organisational environment for the application of TQM may be because hospitals are still operating in the traditional administrative manner, a characteristic of the traditional quality systems still in MOH hospitals (see Table 7.6), top management do not support TQM programmes (see Table 8.4), the process needs

improvement (refer Table 8.9) and misunderstanding of the importance and principles of TQM. This result ratifies the results of the pilot study, which appears to indicate that the hospitals need to modernise their managerial system.

Although TQM suggested that quality is a responsibility for everyone. However, the existence of TQM departments (TQMD) in hospitals may contribute to the spread and support of the TQM culture, especially in the early stages of applying the TQM programmes in Saudi hospitals. The existence of TQMD is considered a positive element in organization environment to support TQM programmes. According to Bin Saeed (1997), the organisational environment should include TQMD in hospitals (see Chapter 5).

Concerning the existing TQMD in hospitals (q 9 in Appendix 3.1, p.350), descriptive statistics show that 50.7 % of the respondents indicated that they have TQMD in their hospitals, while 49 % of them indicated that they do not have TQMD. A Chi-Square test was performed to see if there was any significant difference in the existence or non-existence of TQMD in hospitals. The results show that there is no evidence of statistically significant differences between those who have and those who do not have TQMD in hospitals ( $p=0.77$ ).

An independent sample *t*-test was used to find if there were any significant differences in the levels of improving the cultural environment between those who have and those who do not have TQMD in their hospitals. The results show there was no significant difference ( $p=0.11$ ).

A Chi-Square test was performed to see if there was any significant difference in the existence or non-existence of TQMD among hospitals (Q1) and according to position (Q2). The results show that there was not statistically significant differences between those who have and those who do not have TQMD in the cultural environment among hospitals ( $p=0.49$ ) and among positions ( $p=0.178$ ).

Out of 450 employees, 228 (50.7%) answered the question about TQMD activities of TQM. From Appendix 32, the descriptive statistics show that at least 76.3 % of the respondents strongly disagree or disagree that the TQMD provides the activities of



**TQM.** The means of all activities are less than 3, ranging from 1.68 to 1.86 (strongly disagreed scale value = 1 or disagreed = 2). This gives the opinion that all activities of TQMD about TQM were not effective or did not exist in hospitals. The results from ANOVA test show that there were no statistically significant differences of TQMD activities regarding TQM amongst hospitals and positions of employees.

**Knowledge:** The means of all activities are 2.05, ranging from 2.58 to 2.88 shows that the respondents do not agree that there was no need to change the quality culture and employees need knowledge about the importance, principles and application of TQM. There is one significant independent variable that influences the need for QMS to improve the organisation environment. There is high significance ( $p = 0.00$ ) in that hospitals need to change the quality culture of the employees. May be this is related to newness of applying TQM programmes in these hospitals and poor information systems, as detected in the pilot study. This may also be due to shortage of TQM specialists in MOH hospitals (see Chapter 1).

**Patience:** The mean of 3.61 shows that the respondents were patient in obtaining results of applying TQM. This element influences the need of QMS to improve the organisational environment, as its significance is ( $p = 0.01$ ). But there were many elements that may have a negative effect on achieving benefits from employees' patience. As employees need knowledge about elements and practices of TQM, QMS need to implement TQM elements such as top management support, customers' satisfaction, improving process, culture environment and human resources.

**Environment element:** The mean is 3.19. This shows that the respondents agreed that patients are getting additional services due to favouritism. This element influences the need for QMS to improve the organisational environment as its significance is ( $p = 0.03$ ). Favouritism is common in Saudi society, which has a negative effect on achieving equity in obtaining health services by patients since MOH hospitals provide free services to all patients. It is quite exciting to find that these results are similar to the views obtained from the patient questionnaire, which had a mean of 3.23 in the role of recommendation in reducing the procedure needed for hospitalisation and the mean of 3.18 in the role of recommendation in increasing the attention paid by the hospital staff to the patient's case. This result confirms the results of Al Hamad and Al



Shouaib (1991, p.292) which found that favouritism had played a big role in facilitating the procedures and getting better services. Also confirms Al Mola (2001, p.55) who found that favouritism played a role in facilitating the procedures especially in solving the problems that face inpatients in the hospitals.

**Decision-making:** The means of all activities are 3.47, ranging from 3.16 to 3.64 (strongly agreed scale value = 5 or agreed = 4). This result shows that the employees try to make decisions based on facts, reducing risks, creating opportunities for improvement, updating information, scientific analysis of information and doing the right thing. There are five significant independent variables that influence the need of QMS to improve the organisation environment. It is highly significant in decisions that are based on creating opportunities for improvement, based on facts, depending on updated information ( $p=0.00$ ). In the questions of employees doing the right thing and having perfect understanding of the steps of their work, the significance is ( $p= 0.01$ ;  $0.03$  respectively). Perhaps this is related to the characteristics of the health services, which need to take accurate decisions that are based on facts, updated information and on creating opportunities for improvement at the right time and with understanding of the steps of the work, especially from the view of clinical staff, employees' desire to protect themselves against accountability for professional negligence (especially physicians) as clarified by Mattar study (1997, p. 240). However, poor information systems in health services may affect the accuracy of these decisions.

**Prevention:** Descriptive statistics show that the mean of all elements of prevention is 3.09. This result include the employees' and management's opinions regarding whether or not hospitals applied many of the principles of prevention in health services. These are for example: employees depending on the protection principle, using suitable protection methods, searching for opportunities for improvement, correcting errors, avoiding errors in the future and not repeating some work done by other staff. In addition to these, there is also the hospital management that "instils the notion of protection in the minds of all the employees", "determines the places of error occurrence possibility", the means of all previous elements ranging from 3 to 3.65. But other questions had means ranging from 2.52 to 2.94, such as the employees do not repeat and delay some of their work and the hospital management does not accepts some errors in work. In addition to these there are also: the hospital



management “removes the reasons of errors prior to their occurrence”, “solves the problems after their occurrence” and “considers the definition of problems as an opportunity for improvement”. Hence this gives the impression that these principles of prevention are not applied in hospitals.

Table 8.10 shows that there are seven significant independent variables that influence the need for QMS to improve the organisational environment. These are highly significant in that: employees do not delay some works and avoid errors in the future, the hospital considers the definition of problems as an opportunity for improvement, solving the problems after their occurrence and removing the reasons of errors prior to their occurrence ( $p = 0.00$ ). While in the questions of the hospital management instilling the notion of protection in the minds of all the employees and the employees searching for opportunities for improvement in their work, the significance is ( $p = 0.01$ ;  $0.03$  respectively). Perhaps the lower means of explicitness and co-ordination of the process and systems as shown in Table 8.9 is affecting prevention negatively.

**Information:** The descriptive statistics show that the means of all elements of information are less than 3 ( $= 2.76$ ), ranging from 2.51 to 2.9, except where the hospital has an excellent data base the mean was 3.05. This means that all elements (except one element) are lower than expected. These are: hospitals do not have excellent information system, they do not use modern technology to provide complete, new and desired information to their employees, they do not provide information about quality and TQM and train their employees to use information and they do not consider information as a major source in achieving quality. There are six significant independent variables that influence the need of QMS to improve organisation environment. These are highly significant ( $p = 0.00$ ) in that hospitals do not provide complete and new information, do not provide the information required for improvement of quality and to apply TQM and do not carry out training on how to use information. While in the questions of the hospital not having an excellent information system the significance is ( $p = 0.03$ ). Although the interest in establishing an effective system of health information began in the Fourth Development Plan and is confirmed in the Sixth and Seventh Development Plans, hospitals are still suffering from poor

information systems. This could be because poor information systems are one of the managerial problems that face the MOH hospitals in the KSA (refer to Chapter 2). This result confirms Shihatta's opinion that the MOH hospitals need to improve their information systems to improve their quality. It also confirms Mattar's study that there is a need to improve the information systems about cost in hospitals (see Chapter 1). This also ratifies the findings of the pilot study, which found out that a good information system does not exist in MOH hospitals.

As is evident from the previous results, there are twenty-three significant independent variables that influence the lack of cultural environment for applying a TQM system. These elements have a significant relationship with the needs of QMS to improve the cultural environment in the hospitals. The coefficients on the variables related to organisational environment, quality culture, employees patients, favouritism, decision-making, prevention and information (the variables are 3, 4, 5, 6, 9, 11, 12, 13, 14, 18, 20, 22 and 23 in Table 8.10) indicate that these factors are not important in improving the culture environment.

Upon separate analysis of each hospital, it is found that the significant variables mentioned in Table 8.10 are all significant in some hospitals except 4 variables. These are: "conflict between the medical and the administrative staffs", favouritism", "instilling the notion of protection in the minds of all the employees and training on how to use information". The variables "involving all employees", "employees do not delay some work" and "provide information and training on how to use information for improving the quality" are significant in 3 hospitals (see Appendix 33). The results also indicated that there are some significant variables that affect the improvement of environment culture just in analysing each hospital and that these variables are significant only in some hospitals (see Appendix 33). Also, the Appendix pointed out that hospital 7 contains the biggest number of the significant variables in improving the culture environment (7 variables); followed by hospitals 8, 6 and 2, whereas each of them contains 6 significant variables that are affecting the improvement of the cultural environment.

These differences among hospitals may relate to the differences among hospitals in the characteristics of the quality management system (see Table 7.6), in plans of TQM



and the support of top management to applying TQM and preparing the culture environment of these hospitals and not beginning the quality programmes in MOH hospitals at the same time (see chapter 1).

An ANOVA test was performed to see if there were any statistically significant differences in the management culture elements among hospitals and employee positions related to the twenty-three significant independent variables that influence the lack of cultural environment (see Appendix 34 which includes explanations for the results).

#### **8.1.3.5 There is Sufficient Human Resources Management in the degree of Implement a TQM Programme**

Ho: There is no relationship between the need for improving human resources management (HRM) and the elements of HRM to applying TQM.

H1: There is a positive relationship between the need for improving human resources management (HRM) and the elements of HRM to applying TQM.

This hypothesis was tested using regression analysis method to explain the relationship between the dependent variable and the independent variables (between Y and Xi). In this model, the dependent variable is QMS's need to improve the human resources management (q6.8 in Appendix 3.1, p.344). The independent variables are 33 variables as shown in the employee questionnaire (Appendix 3.1) questions from Q. 6.105 to 6.137, (on pp. 348, 349). Plus some questions which are related to (HRM) element that include questions related to system (6.58 to q6.65, pp.346, 347). In this hypothesis the Linear Regression method was used between the need for improving HRM and the elements of HRM to applying TQM (the stepwise method).

Regression was performed several times (five) for every element as shown in Table 8.11. The objective of this section is to determine the human resource elements of TQM that have significant influence on TQM and the relationship between QMS' need to improve human resources and these variables. The human resources elements (The independent variables) include employee competence, involvement, teamwork, communication, systems and creativity.

Table 8.11

**Regression Analysis of Human Resources Management**

Independent variables	Dependent variable is human resources management					
	Mean	Adjusted R <sup>2</sup>	ANOVA		Coefficients	
			F	Significance	B	Significance
<b>Employees' competence</b>		0.226	41.645	0.000		
1-Employing employees of high competence	2.97				-0.333	0.000***
2-Training courses contributed to improving quality	2.79				0.5	0.000***
3-Training courses that meet employees' needs are provided	2.96				-0.203	0.009***
4-Training courses are continuous	2.8				-0.159	0.033**
<b>Involvement</b>		0.201	57.592	0.000		
5-Participation in making decisions	2.51				-0.5	0.000***
6-Meetings are held among employees	2.49				0.123	0.011**
<b>Teamwork</b>		0.18	33.919	0.000		
7-The work is carried out in a co-ordinated manner between departments	2.89				-0.388	0.000***
8-Suggestions are treated with confidence	2.78				0.298	0.000***
9-The policy is carried out through team work	3.88				-0.130	0.012**
<b>Communication</b>		0.482	53.249	0.000		
10-Co-ordination in communicating information	2.61				-0.528	0.000***
11-Pays attention to effective communication	2.68				0.279	0.000***
12-Messages about TQM submitted from the top management	2.99				0.161	0.000***
13-Communicating the information in the right time	2.76				0.286	0.000***
14-Supplying staff with the skills of communication	2.84				-0.307	0.000***
15-Reinforce QI more than product improvement	2.66				-0.187	0.001***
16-Track QI progress	2.79				0.343	0.000***
17-Use all the main communication tools	2.72				-0.283	0.000***
<b>Systems</b>		0.089	15.618	0.000		
18-Incentives system correlated with performance evaluation system	3.12				-0.291	0.000***
19- Delegation of authority	2.89					
20-The management systems are new	2.6				-0.284	0.000***
					0.218	0.000***

**Note: The Table includes only significant elements**

The following can be observed in the results of MLR:

- The F test and significance for all elements of human resources management show that the regression model, relating to the variation in the dependent variable with the



variation in independent variables, is valid and the hypothesis concerned with the signs and significance of elements of human resources management can be tested.

-The adjusted  $R^2$  has a value of 0.226, 0.201, 0.18, 0.482 and 0.089 for employees' competence, involvement, teamwork, communication and systems respectively. This means that the model of employees' competence, involvement, teamwork, communication and systems explains (22%, 20%, 18%, 48%, 0.8% respectively) the variation in the dependent variable, the residuals of the previous elements related to other elements not included and there is perhaps further research needed into these elements. Theoretical studies suggest that HRM must include all the independent variables shown in Table 8.11 (see Chapter 5).

Descriptive statistics for the independent variable show that 35.1% of the respondents strongly agreed and 49.8% agreed, giving a total percentage of 84.9% of respondents having the opinion that QMS need to improve the human resources management in hospitals. The results from Table 8.11 are described and discussed below.

- **Employee competence:** Descriptive statistics show that the mean for all elements of employees' competence is less than 3 (= 2.87). This means that all elements related to TQM are lower than expected. The mean of employing employees of high competence in hospitals is less than 3 (= 2.86) and is highly significant in human resources management ( $p = 0.00$ ). This is perhaps because the hospitals are suffering from deficiencies in their employment policies, job descriptions for health occupations, low percentages of qualified Saudi labour in the health sector (particularly in the medical, nursing and supporting medical staff) and in the TQM field and operating the hospitals by full or partial operation contracts that depend on a cheap expatriate labour force. It should be noted that a lot of hospitals in the KSA employ low skilled workers from Asian countries, because of their low wage demands.

In education and training descriptive statistics show that the mean of all elements of education and training is less than 3 (= 2.86). The Table shows that there are two highly significant independent variables that influence the need for QMS in human resources management ( $p = 0.000$ ) in training contributed to improving quality and meeting employee needs, while the significance is  $p=0.03$  in training are continuous.

Continuous education and training is an important element in health services due to the rapid rate of technological changes in these services. Also the Sixth and Seventh Development Plans in the KSA aimed at developing the educational and training programs in the health sector. However, as these results show, there is a lack of interest in and provision of opportunities for continuous education and training for employees, provision of adequate facilities and contribution of these courses in improving quality. These results are consistent with the administrative problems in governmental hospitals, including the deficiency in continuous training and education. Although the administrative problems were identified in Chapter 2 as: weaknesses in policies of employment, job descriptions, procedures for operations and in the standards supposed to give more emphasis on the education and training element, this study still found these elements to be lower than expected in many management practices in hospitals. The pilot study also found that education and training programmes in hospitals were weak and ineffective.

Q12 (see Appendix 3.1, p.351) is about employees joining training courses related to quality in hospitals. Descriptive statistics show that 81 % of the respondents indicated that they did not join, while 14.9%, and 3.5 % indicated they did only once and more than once join in training courses of quality respectively. The results also show there was a big difference in the percentages of respondents. A Chi-Square test was performed to see if there was any significant difference between the responses that 'did not join' or 'join more than once' or 'join only once'. The results show that there was very strong evidence of statistically significant differences between those who were trained more than once, only once and not at all on quality ( $p=0.00$ ).

An ANOVA test was used to see if there were any significant differences in the levels of improving human resources management between those who were trained more than once, only once and not at all. The results show there was no significant difference ( $p = 0.96$ ). Out of 450 employees, just 18.4% joined training courses on quality and answered the questions about details of these training courses. Appendix (35.1) shows that the means are more than 3, ranging from 3.34 to 3.86. Although there is a relatively high percentage of the respondents who strongly agree or agree (range from 61.4% to 71.1.3%) that training courses on quality provide employees with the concepts, dimensions, importance, systems and quality applied to their jobs,



the results show the ineffectiveness of training courses regarding quality in an effort to improve the level of human resources management. This is perhaps because of a shortage in these courses and a shortage in the number of employees who join them, since there were shortages in specialists of quality in hospitals, as evidenced from the quality studies in KSA. Also this perhaps related to lack of interest in elements of education and training in general. This confirms the need of QMS training to contribute to improving quality.

An ANOVA test results show that there were statistically significant differences amongst hospitals and positions of employees in training courses in some elements (see Appendix 35.2).

Q13 (see Appendix 3.1, p.351) is about employees joining training courses related to TQM in hospitals. Descriptive statistics show that 84.9 % of the respondents indicated that they did not join, while 10.4% and 4.7 % of them indicated they did only once and more than once join training courses of TQM respectively. The results also show there was a big difference in the percentages of respondents. A Chi-Square test was performed to see if there was any significant difference between the responses that 'did not join' or 'join more than once' or 'join only once'. The results show that there was very strong evidence of statistically significant differences between those who were trained more than once, only once and not at all on TQM ( $p = 0.00$ ).

An ANOVA test was performed to see if there were any significant differences in the level of improvement in human resources management between those who were trained more than once, only once and not at all in TQM courses. The results show there was no significant difference ( $p = 0.615$ ). Out of 450 employees, just 15.1% joined training courses for TQM and answered questions about the details of these training courses. Appendix (35.1) shows that the mean is more than 3, ranging from 3.22 to 3.82 and a high percentage of the respondents strongly agree or agree (ranges between 57.3 % and 76.5%) to: "training courses for TQM provide employees with concepts, importance, objectives, plans, principles, tools of TQM". The pattern is also repeated in their attitude in implementing TQM, how to implement TQM, achieving

effective results in improving quality and enrolling employees in continuous training courses of TQM.

These results give the view that training courses of TQM provide employees with the many aspects of TQM. However, the results also show the ineffectiveness of the training courses of TQM in an effort to improve the level of human resources management. A shortage of these courses and a shortage in the number of employees who join them could well be linked to a shortage in specialists of TQM in hospitals, lack of interest in elements of education and training in general and a lack of commitment by top management to TQM.

The ANOVA test results show that there were no statistically significant differences in training courses of TQM, which provided the employees with the previous aspects of TQM among hospitals and positions.

**-Involvement:** Descriptive statistics show that the mean of all elements of involvement is less than 3 (= 2.5). This means that all elements are lower than expected. Hospitals do not encourage their employees to participate in making decisions regarding quality and in conducting meetings to exchange opinions about quality. The Table shows that there are two significant independent variables that influence the need of applying QMS to human resources management ( $p = 0.00$ ;  $0.01$  respectively) in “encouraging employees to participate in making decisions regarding quality issues and conducting meetings to exchange opinions about quality”. This perhaps related to centralisation of authority in quality systems (see Table 7.6) and the relative newness in applying TQM in MOH hospitals, and the lack of understanding in applying elements of TQM and the lack of encouragement by top management regarding TQM programmes.

### **Employee participation in TQM Programme**

Descriptive statistics related to employee participation (q 10 in Appendix 3.1, p.350) show that 8.4% of the respondents indicated that they always participate in TQM, 18.7% of them indicated that they sometimes participate, while 72. % indicated they never participated. A Chi-Square test was performed to see if there were any significant statistical differences between the responses that ‘participated in TQM



programmes.’ or ‘sometimes participated in TQM programmes’ or ‘never participated’. The results show there was very strong evidence of significant statistical differences between those who participated, sometimes participated or never participated in TQM programmes ( $p = 0.00$ ).

An ANOVA test was performed to find if there was any significant difference in the level of improving human resources management between those who always, sometimes or never participated in TQM programmes. The F test was 0.049. The LSD test shows that there was a significant difference between those who participated only occasionally and those who did not participate at all in TQM programmes ( $p = 0.01$ ). Possibly because the mean of those who participated only occasionally was the lowest mean among the three categories.

A Chi-Square test was performed to see if there was any significant difference between those who always, sometimes or never participated in TQM programmes, among hospitals (Q1) and among positions (Q2). The results show that there was no significant difference between those who always, sometimes participated and those who did not participate among hospitals ( $p = 0.364$ ), while among positions, there were differences ( $p = 0.00$ ).

Out of 450 employees, just 27.1% answered the question about participation in different activities of TQM programmes. Appendix 35.1 shows that at least 50.8 % of the respondents strongly disagree or disagree that they did not participate in different activities of TQM programmes that include planning, application, evaluation, problem solving, improving and attending meeting of TQM. The means of all previous activities are less than 3, ranging from 2.61 to 2.96. The small number of employees who responded to this question, together with the low scores (all below 3 (neutral)) shows that previous participation in TQM was not an indication of effectiveness. The programmes were ineffective.

The results from the ANOVA test showed that there were significant differences of participation in the planning of TQM among hospitals and positions (see Appendix 35.2).

**Teamwork:** Descriptive statistics show that the mean of all elements of teamwork is less than 3 (= 2.79). This means that all elements are lower than expected, although hospitals have a large number of workers with different specialisations that could be applied to the elements of teamwork. However, the results show that the employees do not relate to the concept of teamwork, sense of co-operation and confidence in the department and co-ordination among departments. These results confirm the results of the patients' questionnaire relating to teamwork, co-operation and co-ordination as the mean of respondents is lower than expected (see Appendix 26.2). The results also confirm the results of the pilot study received from employees, which indicated that there was lack of teamwork in hospitals. The Table 8.11 also shows that there are three significant independent variables that influence the need for QMS in human resources management. These variables are: the work is carried out in a co-ordinated manner between departments, the suggestions treated with confidence and the policy is carried out through team work ( $p = 0.00$ ;  $0.00$ ;  $0.01$  respectively).

Many of the TQM researchers and writers emphasise forming quality improvement teams (QIT), such as Al Hayjan (1994) (see Chapter 5). Q11 (in Appendix 3.1, pp.350, 351) is concerned with the existence of QIT. Descriptive statistics revealed that 56% of the respondents indicated that they do not have QIT, 25.6% of them indicated that they have QIT temporarily, while 18.4 of them indicated they have QIT constantly in their hospitals. A Chi-Square test was performed to see if there any statistically significant differences between the responses that 'they do not have QIT.' or 'they have QIT temporarily' or 'they have QIT constantly'. The results show there was a highly statistically significant differences between those who do not have QIT, have QIT temporarily or constantly in their hospitals ( $p = 0.00$ ).

An ANOVA test was performed to see if there was any significant difference in the level of improving human resources management between those who do not have QIT, have temporarily and constantly QIT in hospitals. The F statistic was not significant ( $p = 0.323$ ). Out of 450 employees, just 198 (44%) of them answered the question about QIT. Appendix (35.1) shows that the means are less than 3 (between 2.5 to 2.78) and the high percentages of the respondents who strongly disagree or disagree with "employees always participate in one of these teams, members in QIT



have interest and skills to improve quality, QIT have authority, facilities and are finding opportunities for improvement quality.

This result shows that this is perhaps because QIT in hospitals do not have enough authority and facilities for finding opportunities for improving quality in addition to the limited number of the employees who participated in these teams as shown by the small mean of these variables.

An ANOVA test results show that there were significant statistical differences among hospitals in QIT who always participate in some elements (see Appendix 35.2).

**Communication:** Descriptive statistics show that the mean of all the elements is less than 3 = 2.76. This means that all the nineteen elements, as revealed in the employee questionnaire are lower than expected. The Table 8.11 shows that there are eight highly significant independent variables that influence the need for QMS to human resources management ( $p=0.00$ ) including: co-ordination in communicating information, attention paid to effective communication, messages about TQM submitted from the top management, communicating the information in the right time, supplying staff with the skills of communication, reinforce QI more than product improvement, track QI progress and use all the main communication tools. This is perhaps because of shortcomings in the information system, co-ordination, traditional organisation structure, managerial and quality systems, as evident from the previous tables. There are no published studies on the communication element in the KSA hospitals. This result shows that, as found in the pilot study, the hospitals have poor communication systems, which adversely affect the impact of TQM programmes.

**Systems:** Descriptive statistics show that the mean of all elements of systems is less than 3 (= 2.99). This implies that all elements are lower than expected. The Table 8.11 shows that there are three highly significant independent variables that influence the need of QMS to human resources management ( $p = 0.000$ ) in: “incentive systems correlated with performance evaluation system, delegation of authority and the management systems are new”. The reason for lack of systems is perhaps attributed to the process and organisation environment.

**Creativity:** Q14 ( see Appendix 3.1, pp.351, 352) is about whether hospitals are giving the opportunity to their employees to be creative in their jobs. Descriptive statistics show that 19.6% of the respondents indicated that their hospitals gave them the opportunity to be creative, 36.4% of them indicated sometimes, while 44% of them indicated that their hospitals did not give them opportunity to be creative. A Chi-Square test was performed to see if there were any significant statistical differences between the responses that 'their hospitals give them or sometimes give them and never give them an opportunity for creativity'. The results show there was very strong evidence of statistically significant differences between the previous three groups ( $p=0.00$ ).

An ANOVA test was performed to find if there were any significant differences in the level of improvement in human resources management between those who indicated that their hospitals did not give them, sometimes gave them and never gave them an opportunity for creativity. The F statistic was not significant ( $p = 0.489$ ). Out of 450 employees, 56.1% answered questions that include details of creativity. Appendix (35.1) shows that the means are less than 3, ranging from 2.43 to 2.83, except in employees taking decisions based on new ideas to improve quality (mean = 3.16). The percentage of the respondents who strongly disagree or disagree ranges from 47.2% to 56% in "employees suggest new proposals, hospitals provide facilities for creative, performance standards, incentive systems and TQM used to motivate staff for creativity". Some employees mentioned that non-availability of modern technology hampers working creativity.

These results imply that the hospitals' management does not encourage creativity among its employees (except in employees who take decisions based on new ideas to improve quality) and the systems, such as performance standards, incentives system and TQM. The most likely cause for this perhaps is due to the fact that the MOH is suffering from many problems such as administrative problems. Hospitals still operate in a traditional administrative manner and use traditional methods. Their management systems need to be modernised as well as the characteristics of a quality management system to motivate staff to be creative in their jobs. These results confirm the results of the pilot study, which appeared to indicate that the creativity and innovation element did not exist in hospitals.



An ANOVA test results show that there were significant statistical differences amongst hospitals and positions of employees (see Appendix 35.2).

As evident from the previous results, there are twenty significant independent variables that influence the lack of human resources management in applying TQM systems. These elements have a significant relationship with the need for QMS to improve human resources management in hospitals. The coefficients on the 12 variables related to the employees competence, involvement, teamwork, communication and system (the variables are 1, 3, 4, 5, 7, 9, 10, 14, 15, 17, 18 and 19 in Table 8.11) indicate that these factors are not important in improving the HRM.

Appendix 36 indicates that the significant variables that are affecting the improvement of HRM in Table 8.11, are significant in only some hospitals upon the analysis of each hospital separately, except four variables, namely: “training courses are continuous”, “coordination between departments”, “coordination in communication of information” and “effective communication”. The most significant variables included: “meetings are held among employees” and “skills of communication”. These are significant in 4 of the sample’s hospitals. The Appendix indicated that there are other variables that are only significant upon analysis of each hospital separately and are affecting HRM. There are 22 variables, and the variables “continuous education of the employees in their respective fields of specialisation” (significant in 5 hospitals); “using performance evaluation to determine the effective trends of QI (significant in 4 hospitals (see other variables in Appendix 36). Also, Appendix 36 indicated that the biggest number of the significant variables is in hospital 9 (19 variables), hospital 2 (11 variables) and hospital 3 (10 variables).

These differences among hospitals may be related to the differences among hospitals in the characteristics of quality management systems (see Table 7.6), in the qualification of top management to improving HRM in these hospitals and possibly no unified policy in improving HRM suitable to TQM in these hospitals.

To test whether there were any significant differences of human resource management elements among hospitals and positions of employees, ANOVA tests were performed (see Appendix 37 which includes explanations for the results).

**8.1.3.6 The Quality Costs of Health Care.**

Ho: There is no statistically significant differences between those who did have high quality costs and those who did not have high quality costs in their department.

The first objective of this section is to determine if the respondents suffered from high quality costs. The second objective is to select those who have knowledge about costs and determine their opinion on how they comprehend that cost affects TQM and how they rank the variables that affect costs (see Appendix 3.1, q 15 and q 16, p. 352).

To test the hypothesis on whether the respondents do not suffer from high quality costs in their department, a Chi-Square test was used to detect any difference between the responses ‘yes’, ‘no’ or ‘do not know’ summarised in Table 8.12.

**Table 8.12**  
**Distribution of Responses from Employees about the Quality Costs**

	YES		NO		Don't know		Chi-Square Significance
	Count	%	Count	%	Count	%	
Quality costs	40	8.9	60	13.3	340	75.6	0.00***

Table 8.12 shows that 75.6 % of the respondents indicated that they did not know if quality costs in their departments are high, while 22.2% have some knowledge about costs. Those who have knowledge are further split into 13.3% for those who believe their hospital did not incur high costs, while 8.9% of them indicated that their hospitals incur high costs pertaining to quality. Combining those who did not have knowledge, we have percentages of 77.8%, which show a high percentage of the responses who did not have knowledge regarding quality costs. A Chi-Square test was performed to see if there was any significant difference between those who answered ‘yes’, ‘no’ or ‘do not know’ in hospitals. The results show there is very strong evidence of statistically significant differences between those who answered ‘yes’, ‘no’ or ‘do not know’ (p =0.00) indicating that the respondents did not have



knowledge regarding quality costs. The conclusion is that the employees lack knowledge about costs of quality which may be related to secrecy or commercial sensitivity of this knowledge. Appendix 38 indicated the same outcome upon separate analysis of each hospital, as the results in each hospital show that there is between 87.5% and 66.7% of the respondents indicated that they did not know about the quality costs in their departments, and also there were statistical significance differences between those who answer “yes”, “no” or “don’t know. The hypothesis that the respondents reduce the quality costs is not rejected or accepted.

This finding has a significant impact, because one could deduct that the lack of knowledge about costs could affect TQM programmes in several ways, including employees not doing the right thing the first time because they do not know the impact of their actions. Also, it may mean that communication regarding TQM programmes is ineffective.

Interviews with quality supervisors revealed that the information about costs is not available for researchers and according to them the budgets of hospitals have no specific clauses of quality costs.

An ANOVA test was used to see if there were any significant differences in: “the need to optimal utilisation of available resources; q6.9 in Appendix (3.1)” between those who answered ‘yes’, ‘no’ or ‘do not know’ about quality costs in hospitals. The results show there was no significant difference ( $p=0.28$ ). An ANOVA was used to find if there were any significant differences in: “the need to improve the quality; q6.2 in Appendix (3.1, p.344)” between those who answered ‘yes’, ‘no’ or ‘do not know’ about quality costs in hospitals. The results show there was no significant difference ( $p=0.322$ ). This is perhaps related to the information regarding the quality cost being unknown to the employees. These results conform with the Mattar’s study (1992), which shows that the health services need cost information systems, and with the pilot study results, which indicated that the employees need information about the relationship between quality and costs (see Chapter 1).

A regression analysis method (the Linear Regression – enter method -) was used to explain the relationship between the dependent variable “the need to improve the

quality; q6.2 in Appendix (3.1)” and the independent variable “the need to optimal utilisation of available resources; q6.9 in Appendix (3.1)”. Results show that the adjusted  $R^2$  has a value of 0.07 and the need to optimal utilisation of available resources is a significant element in the need to improve the QMS as ( $p = 0.00$ ). Descriptive statistics revealed that 35.34% of the respondents strongly agreed and 44.4% agreed, giving a total percentage of 79.7% of respondents having the opinion that there was a need for optimal utilisation of available resources. From the theoretical studies, the optimal utilisation of available resources leads to containing the costs and improving quality.

A Chi-Square test was performed to see if there was any significant difference between those who answered ‘yes’, ‘no’ or ‘do not know’ about quality costs in hospitals and among hospitals (Q1) and according to position (Q2). The results show that there was no statistically significant differences among hospitals ( $p = 0.12$ ) and among positions ( $p = 0.26$ ).

The results of how the respondents rank the quality costs (costs of prevention, appraisal and failure) show that 77.8 % of the respondents did not answer this question as they indicated they did not know, while 22.2 % of the respondents arranged the costs of quality as follows:

- 1- 59.6% of them indicated the highest costs are prevention costs
- 2- 34.3 % of them ranked the appraisal costs in level 2.
- 3- 39.4 % of them ranked the failure cost – correction of mistakes - in level 3.
- 4- 50.5% of them ranked the failure costs– after affecting the beneficiary in level 4 of quality costs.

These results appear to indicate that the highest costs are those of prevention.

#### **8.1.3.7 Hospitals make Sufficient use of TQM Tools**

The hypothesis includes two points, to determine if the employees use the TQM tools and what TQM tools they always use.



Ho: There is no statistically significant difference between those who were always, sometimes, or did not use TQM tools in improving the quality of health services.

To test the hypothesis on whether the respondents use TQM tools, a Chi-Square test was used to detect any difference between the responses ‘always’, ‘sometimes’ or ‘no’ summarised in Table 8.13. (see Appendix 3.1, q 17, p. 352).

**Table 8.13**  
**Distribution of Responses from Employees about Using TQM tools**

	Always		Sometimes		No		Chi-Square Significance
	Count	%	Count	%	Count	%	
TQM tools	21	4.7	105	23.3	310	68.9	0.00***

Table 8.13 shows that 68.9 % of the respondents indicated that they did not use TQM tools, while 28% indicated that they did use them. Those who used TQM tools are further split into 23.3% for those who sometimes used them and 4.7% for those who always used them. Combining those who did not use TQM tools, we have percentages of 72%, which show a high percentage of the responses who did not use TQM tools. A Chi-Square test was performed to see if there was any significant difference between those who answered ‘always’, ‘sometimes’ or ‘no’ in using TQM tools. The results show there is very strong evidence of statistically significant differences between those groups ( $p = 0.00$ ), It can be concluded that there is a difference between those who use and those who do not use TQM tools.

Appendix 39 indicated the same results upon the analysis of each hospital separately, except in the case of hospital 9. As the results in each hospital show, between 63% and 97.6% of the respondents indicated that they do not use TQM tools and also there were significant statistical differences between those who answer “always”, “sometimes” or “no”.

An ANOVA test was used to find if there were any significant differences in the “the need to use of different tools for improving quality; q6.10 in Appendix (3.1, p.345)” between those who answered ‘always’, ‘sometimes’ or ‘no’ in using TQM tools. The results show there was no significant difference ( $p = 0.08$ ). An ANOVA

was used to find if there were any significant differences in: “the need to improve the quality; q6.2 in Appendix (3.1, p.344)” between those who answered ‘always’, ‘sometimes’ or ‘no’ in using TQM tools. The results show there was no significant difference ( $p=0.766$ ). So the researcher can accept the null hypothesis. This means that using or not using TQM tools does not affect the improvement of quality. However, this is not consistent with theory (chapter 5). It could be that employees totally lack knowledge about tools. Because of the employees’ lack of knowledge about tools, they may fail to appreciate the notion of tools in TQM. This is even more so given that only 4.7 % of the employees always use tools, and of this 23.3 %, they sometimes use tools.

A Chi-Square test was performed to see if there was any significant difference between those who answers ‘always’, ‘sometimes’ or ‘no’ in using TQM tools among hospitals (Q1) and according to position (Q2). The results show that there was no statistically significant differences among hospitals ( $p=0.16$ ) and among position ( $p=0.25$ ).

Out of 450 employees, just (28%) stated the TQM tools they are using. Table 8.14 gives the distribution of responses regarding the use of TQM tools. The count extends from 6 to 54. Most employees answered about using different TQM tools, tool check sheets used by 22.1%, brain storming by 20.9%, quality circles by 17.2% and flow charts by 15.2%. The use of tools, such as cause and effect diagrams, control charts, histograms, house of quality and Pareto charts were mentioned by 24.7%. Self-criticism and collective opinion are among the other tools that had been mentioned by some employees. There were many tools related to TQM but the tools which mentioned the same tools in some health services (see chapter 5), also in the results of the pilot study and main study the employees did not mention any other tools.

A Chi-Square test was performed to see if there was any significant difference in using or not using the tools, which is presented in Table 8.14 among hospitals (Q1) and according to position (Q2). The results show that there were significant differences among hospitals in using Brain storming and Control charts ( $p=0.057$ ; 0.051 respectively). The results also show that there were significant differences among positions in using flow charts and Control charts ( $p=0.02$ ; 0.03 respectively).



Table 8.14

**Employee Responses about the Use of Different TQM Tools in Hospitals**

Techniques			Chi-Square	
	Count	%	Chi-Square among hospitals Significance	Chi-Square among positions Significance
Quality circles	42	17.2	0.457	0.352
House of Quality	7	2.9	0.164	0.692
Flow charts	37	15.2	0.801	0.026**
Brain storming	51	20.9	0.057*	0.082
Check sheet	54	22.1	0.169	0.237
Control charts	17	7	0.051*	0.034**
Cause and effect diagram	18	7.4	0.504	0.411
Histograms	12	4.9	0.765	0.265
Pareto charts	6	2.5	0.315	0.581
<b>Total</b>	<b>244</b>	<b>100%</b>		

Deficiency in using different tools of TQM gives us the view that hospitals do not make sufficient use of TQM tools. This is perhaps due to the small number of employees who know how to use TQM tools, of the relative infancy of applied TQM programmes in hospitals, shortage in specialists of TQM in hospitals, inadequate TQM training to provide employees with TQM tools and absence of consciousness with respect to the importance of TQM tools in improving quality, especially among physicians. These results are consistent with the results of the pilot study that indicated a shortage in using TQM tools in hospitals. So the researcher rejects the hypothesis that hospitals make sufficient use of tools of TQM.

## 8.2 Conclusion

This chapter presented the test of the hypotheses related to TQM elements and the problems impeding the application of TQM in hospitals. The analysis clarified that there were a lack of TQM elements such as top management commitment, customers' satisfaction, process, cultural environment, human resources, costs and tools of TQM.

The results of the data of the main study will appear in the next chapter. The results shall be presented through the results of general information of patients and the hospital employees sample, and of basic information pertaining to its objectives and hypotheses. The next chapter will also include the recommendations of this study, the development of a model and a programme for applying TQM in hospitals.

## **CHAPTER 9**

### **RESULTS OF THE MAIN STUDY**

#### **9.0 Introduction**

This chapter discusses the results following analysis of the field study data. The study results are discussed in light of the results of the general information gathered and the basic information relating to objectives and hypotheses.

#### **9.1. Results of the General Information, including the hospital, employee and patient samples.**

**Hospital Sample:** Some of these hospitals provide health services in all medical specialisations, while others provide specific medical specialisations. The sizes of these hospitals vary in terms of the number of beds. There is a hospital bed shortage of approximately (636 bed) 16.3%. The average length of patient stay and the rate of bed occupancy vary among hospitals in the sample, which is different in comparison with similar hospitals in the Kingdom.

**Employee Sample:** This includes all categories of manpower in the hospital. 24.2% of the sample represents physicians, 24.4% represents nurses, 25.3% represents other allied clinical health personnel, while 26% represents non-clinical staff. The average manpower per 100 beds varies in different hospitals. In addition, the average length of employee work experience varies between 1 and 35 years. The average length of work experience for non-clinical categories (12.32 years) is higher than that of clinical categories (between 11.3 to 11.47 years).

**Patient Sample:** This includes males and females, Saudis and non-Saudis, all educational levels, all age categories and various income levels. According to the sample, inpatients in government hospitals are characterised by:

- The percentage of inpatient males (53.3%) is higher than that of females (44.1%).
- A high percentage of the inpatients (79.4%) are of Saudi nationality.
- A high percentage of the inpatients are of secondary educational level or lower (56.5%), 25.8% are holders of a diploma or are university graduates and 2.9% are



holders of higher education qualifications, while 14.8% have no formal qualifications.

- The largest age category among the inpatients is that of 15 to less than 40 year olds (62%), followed by the category of 40 year olds and above (29.9%).
- A big percentage of inpatients are of a low-income category, whereas 62.3% are earners of a monthly income of less than SR 5,000, followed by those with monthly incomes of between SR 5,000 and SR 10,000 (24.9%).
- Patients are admitted as inpatients from the emergency section, outpatient clinics, health centres, transferred from another hospital or transferred from the Ministry of Health. However, a large percentage of these (45.2%) are admitted as emergencies and a small percentage (7.5%) are admitted through health centres. This means large numbers are admitted as inpatients without planning, hence adversely affecting the quality of the provided health services.
- Inpatients are admitted for medical treatment and operations. However, a small percentage of them (6.4%) are admitted for medical check ups.
- Medical treatment services are the basic services provided by hospitals (98.3% of sample), while preventive and educational services are limited (4.6% and 4.3% of sample respectively). When the hospitals provide limited preventive and educational services to their patients that may negatively affect the quality of the health services provided as the preventive and educational elements are important to both health and quality. For example, not giving the patient information on how to prevent other diseases associated with his/her disease that may negatively affect his or her health situation and the quality of the health services provided.
- 46.1% of the sample had been admitted as inpatients for the first time, 32.5% more than once and 21.4% for the second time.

The differences in the demographic factors of the patients (sex, nationality, educational level and income), the methods of being admitted to hospitals and the reasons behind hospitalisation do not affect the patients' evaluation of the quality of the services provided by the hospitals. Although the results show that most of the patients were aged between 15 and 40 years old, this does not affect the patients' evaluation of the quality of the services provided by the hospitals. Those who have been admitted more than once are less satisfied. Referring to the analysis of general

information from the patients of each hospital, it was concluded that there were differences in the ratio of this information amongst hospitals.

## **9.2. Results of Analysis of Research's Objectives**

**9.2.1 First Objective:** Defining the concept of quality in health services from the standpoint of patients and employees. The descriptive statistical methods indicated that the concept of quality for patients focuses on four elements. These elements are accurate diagnosis and suitable treatment, humanitarian aspects, availability of comfort and technical services. The factor analysis method indicated that the concept of quality from the standpoint of patients includes four factors. These factors are social aspects, human and technology aspects, medical care and comfort and service provided to the maximum number of patients. The descriptive statistical methods indicated that the concept of quality for employees focuses on four elements. These elements are the art of medical care, diagnosis and treatment and availability of technical services. The method of factor analysis indicated that the concept of quality from the standpoint of employees includes three factors: providing guaranteed health services, medical care and social aspects.

**9.2.2 Second Objective:** Determining the characteristics of the quality systems implemented in MOH hospitals. More than 50% of respondents answered that 88% of the factors relating to determining the quality system to be implemented are in accordance with the traditional systems of quality management. Hence, the characteristics of the traditional quality management systems applied in the hospitals include: centralisation of authority; decision-making is dependent on knowledge of top management; no employee empowerment; the organisational structure is still hierarchical and static; departments are isolated and communication is vertical downwards. The hospital managements consider employees to be the cause of problems and that they are responsible for quality, they avoid looking for and finding problems and use reactive and inspection methods for solving problems and for improvement. There was no evidence of proactive actions in solving problems or focus on the patients and communication with them whenever there were problems. Short-term plans and results, statistical methods, dependency on inspectors and specialisation in achieving quality, physicians forming the majority on quality



committees and finally, the design of services are determined by specialist departments and depend on expert knowledge. 12% of the other factors include unclear implementation of TQM systems or poor implementation. These factors include; productivity and quality, process and limited acceptance of errors.

In general, the results show that, overall, hospitals are still practising the old quality system, which do not include the principles of TQM. The factors pertaining to definition of customers, organisation structure and services design are significant in all hospitals and in each hospital separately. Some factors that are significant in all hospitals are significant in some hospitals and insignificant in others.

**9.2.3 Third Objective:** Determining the definitions of TQM in health services from the standpoint of the employees. According to descriptive statistical methods, definitions of TQM include many of the ideas/factors related to TQM such as; a comprehensive and integrated view for all services and customers of health services, conformity of services to quality standards, continuous improvement of process, work environment and performance, implementation of the principles and tools of TQM, customer satisfaction, doing the right thing first time, cultural environment, containing costs and, in addition, the definition includes some ideas relevant to traditional quality management such as relying on inspection.

The method of factor analysis indicated that the definitions of TQM include four major factors: Factor 1: Content analysis of TQM, which includes many aspects such as conformity of services to quality standards, continuous improvement, consumer satisfaction, application of TQM principles and tools and compatibility with the culture. Factor 2: The definition of TQM is based on the concepts of a traditional quality system and the economics element. Factor 3: A wide definition of TQM includes the comprehensive and integrated view of all health services and their consumers. Factor 4: Changing the quality culture to do the right thing, the first time.

The factors of cost and environment are present in both the concepts of quality and TQM. There were no significant statistical differences among hospitals and the position of the employees that related to the previous four factors relating to the definitions of TQM.

**9.2.4 Fourth Objective:** “elucidation of the importance of applying the elements of TQM in MOH hospitals”. 89.8% of employees confirmed the necessity of quality improvement. About 72% to 95.3% of them indicated that there was a need to improve the application of TQM elements. The mean for these factors is more than 4, except the mean of element related to optimal utilisation of available resources and usage of different tools to improve quality (3.97, 3.84 respectively). The results show that there are nine significant correlations between the need of each element of TQM and the need of QMS to improve quality. The arrangements of these elements are: the need for improving the organisational environment, improving the process, the support of top management for the application of TQM, achieving patient satisfaction, the use of different tools for improvement, a comprehensive system for quality achievement, achieving employee satisfaction, improving human resources management and the optimal utilisation of available resources. The results indicate that it is considered important to apply the elements of TQM to improve the quality in MOH hospitals. The analysis results for each hospital found that the ranking of the need to apply TQM elements varies from one hospital to the other and it is different from the previous results.

The results show that there were significant differences amongst the hospitals regarding: the need to improve the quality of health services, process, patient satisfaction, human resources management, the use of available resources, the use of different improvement tools, and support from top management.

### **9.3 Results of Testing the Research Hypotheses**

#### **9.3.1 First Hypothesis: “MOH hospitals have quality standards and indicators”.**

The study indicated that a large percentage of the employees indicated that there are no quality standards and indicators in their work (87.6%, 92% respectively). In each hospital analysis the results indicated that there are no quality standards and indicators. A small percentage of employees indicated that there are scientific characteristics of quality standards (between 4.9%- 1.3%) and of quality indicators (between 4.3%- 0.6).



These characteristics include: reliable, applicable, measurable, specific, clear, sensitive, updated continuously, sufficient and suitable standards for implementation in Saudi hospitals. Finally, the study revealed that a small percentage of employees indicated that quality standards are applied (between 2.3%- 1.5%) and quality indicators are applied (between 1.3 and 0.9%). The application included explanation and training, continuous application, comparison and benefit from application.

From the above analysis, the hypothesis, relevant to correctness of availability of quality standards and indicators has been rejected.

### **9.3.2 Second Hypothesis: “Quality management plans lead to improvement in the quality of hospital health services”.**

Results indicated that the objectives of old quality management systems (assessment and assurance of quality) exist according to 62.5% of employees, while just 37.5% of respondents indicated they aim to improve the quality in their work. The results (mean of 2.6 – 3.1) indicated that the quality plans relevant to achieving the factors of TQM are available, but at a low level and very ineffective. In addition, the percentage of employees who answered that there are no such plans and they do not know about it is high (52.7% - 72.2%). There are two significant independent plans that influence the objective of improving quality. There are two highly significant plans ( $p = 0.00$ ), that are improving human resources management and the availability of a suitable cultural environment for quality achievement. The other variables were insignificant. The researcher therefore rejected the hypothesis that management plans lead to improvement in quality within the hospitals with respect to the previous two plans. However, in analysing each hospital the first plan is significant in hospital 4 only, while the second plan is not significant in any hospital. Also, these plans are significant in improving quality in some hospitals.

### **9.3.3 Third Hypothesis: “Top management is committed to the implementation of TQM programmes”.**

The results indicated a pressing need for top management to support the implementation of TQM, for the improvement of QMS and the quality of the provided health services, as indicated by a large percentage of the employees (80%). It is evident that all factors relating to the support of top management are lower than

expected. Moreover, 7 out of 16 factors are also lower than expected and have a significant influence on hospitals' need for support from top management for the implementation of TQM (have significant statistical differences). These factors include: the job has excellent clarity of mission, vision, values and objectives of TQM, interest in the improvement process and in winning patients' satisfaction and in containing costs. But the mission of TQM, patient satisfaction, objectives of TQM and containing costs need the support of top management.

The previous 7 elements are also significant in some hospitals when separate analysis is undertaken, with some elements found upon analysis of each hospital. The significant elements are frequent in hospitals 2 and 7 (each has 7 significant elements), hospital 6 (6 elements), hospital 8 (5 elements).

The results show that there are significant differences among hospitals for the mission of TQM, the vision of TQM, improving the process, patient satisfaction, values of TQM, objectives of TQM and containing the cost. Also there are significant statistical differences among employees with respect to cost containment. Non-clinical categories agree more than others with respect to top management support for reducing costs. Due to the above results, the researcher rejected the hypothesis that top management support the implementation of TQM with respect to the previous 7 factors.

**9.3.4 Fourth Hypothesis:** "customers are satisfied with the current quality of health services". Statistical tests results are as follows:

**Requirements:** According to the opinions of patients and employees, the level of response of health services to the requirements of patients is low and is a significant element in the quality level. Therefore, the researcher accepts the hypothesis, namely, that "there are significant statistical differences between the quality level of health services and patients' requirements. But the variables related to the providing the information to the patients, nursing services, doctor's dealing with patients and their family and physical therapy services with the mines value are low influence of the low level of patients' requirements.



- **Level of quality services:** According to patients' opinions, the highest percentage of the quality level achieved in health services are between average and good, nothing is categorised as poor, very poor or excellent, except for the element relating to the patient's families and friends. The means are between 2.13 and 3.79 for all health services.

The method of factor analysis indicated that the health services provided to inpatients include twenty factors. There are thirteen significant factors that cause a reduction in the satisfaction of patients' requirements. These factors are: systems relating to patients' satisfaction, providing the information to the patients, medical services systems, doctors' decisions to hospitalise the patients, nursing services, elements relating to TQM, doctors' ability in providing accurate diagnosis and treatment, doctors' attitude to patients and their family, systems relating to improving the services, laboratory services, physical therapy services, doctors' interest in following up his/her patients and their treatment and emergency and social services. The mean of the systems relating to patients' satisfaction, providing the information to the patients, medical services systems, physical therapy services and elements related to TQM are lower than the average levels of quality, while other significant elements are between 3.01-3.9.

- **Choice:** A low level of satisfying patients' requirements is affected by the high percentage of patients who are not allowed to select the food or explain their requirements and problems (77.4%, 78.8%, 66.7% respectively), and those who were not asked to evaluate the health services (60.3%). It is also affected by the high percentage of patients who are asked to buy medicine and medical materials (62.2%). Physicians do not give sufficient time to patients, and the non-availability of employees in offices.

**Problems:** Patients face many problems that influence the low level of their requirements being met such as: lengthy waiting time before making an appointment and examination and non-function of some of the medical devices. The problems are also exacerbated by the lack of an effective system for solving the patients' problems as indicated by 32.7% of the employees. Waiting time before making an appointment is low influence of the low level of patients' requirements.

In analysing each hospital separately, the results found the same previous elements that influence PR (table 8.6,8.7 and 8.8) which are significant in some hospitals. Except for elements pertaining to doctors' decisions to hospitalise the patient, explaining the specifications of the required service, emergency and social services, doctors do not devote enough time to consultation and diagnosis, and employees do not always stay in their offices. There are variables are significance in analysing hospitals in general and also in analysing each hospital separately such as accurate diagnosis and treatment, rooms' services, hospitals and systems pertaining to patient admissions to hospitals. Moreover, there are other elements that are significant only upon separate analysis of each hospital.

- **Employees' Satisfaction:** Quality systems do not meet the employees' satisfaction as indicated by 76.4% of them, and the means of all elements are lower than expected (except the element about the employee concerning himself with fulfilling the wishes of consumers in his work). Two factors affecting employees' satisfaction are: the hospital endeavours to realise the expectations of employees and is keen to interact with employees. There are significant statistical differences among the hospitals with respect to the previous two factors.

Upon separate analysis of each hospital, it is found that the variable "knowing employees' needs is significant in hospital 3 only; the variable pertaining to "realising the expectations of employees" is significance in hospital 7 only. While "knowing employees expectations" and "keen interaction with employees" is significant in hospital 4.

In the light of the general results the researcher rejects the hypothesis that the level of health services quality meets the patients' requirements as regards the level of services' quality, choice and problems. Also, the health services do not achieve employees' satisfaction, does not realise the expectations of employees, and is not keen to interact with employees.

**9.3.5 Fifth Hypothesis:** "Hospitals focus on the quality process of health services". The results indicated a need for improving the process as indicated by 87.8 % of the employees and all factors concerning this element are lower than expected, except the



factor relevant to the continuous improvement of the process. Moreover, results indicated that there are 16 factors that are considered important and of significant statistical differences in the need for improving the process.

There is a strong significance in: there are explicit work methods to assist employees to realise quality, the hospital needs to co-ordinate the various processes, the processes need to account for improving the human resources management and to employ TQM tools, the hospital was not interested in patients' satisfaction when determining the process, teamwork is an important element in the evaluation of the processes, employees are interested in the continuous improvement of the processes, the continuous improvement of processes carried out through teamwork, there is an integrated system of incentives acceptable to the employees, the performance evaluation system assists the TQM process, and the hospital uses performance evaluation to determine the effective trends of quality improvement. There was a 0.05 level of significance in: there are explicit work policies to assist employees to realise quality, the hospital needs to co-ordinate steps within the process, the processes need to improve the organisational environment, the hospital management included their employees in designing processes and the hospital does not need to use modern managerial methods. The variables related to work policies, co-ordinate steps, interest in patient satisfaction and in continuous improvement the process through teamwork and participation the staff in designing process are fewer needs in improving the process.

From the above analysis of all hospitals, the researcher rejected the hypothesis with respect to the previous 16 factors. In addition, the study concluded that there are differences between hospitals in many elements relating to the explanation, co-ordination, TQM elements, continuous improvement in the processes and systems. Other allied technical staff agree more than non-clinical staff with the need to use TQM tools, they also agree more than non-clinical staff and physicians in the inclusion of employees in designing the processes. In analysing each hospital separately the results found the same previous elements are significant in some hospitals, except the variable pertaining to "the hospital's management should involve its employees in the evaluation of the processes". The variables "the processes needed to account for improving HRM and teamwork is important in the evaluation of the processes", are

significant in 4 hospitals of the sample. Moreover, there are other elements that are significant only upon separate analysis of each hospital.

**9.3.6 Sixth Hypothesis:** “The cultural environment in the hospitals is conducive to the implementation of TQM”. Results showed that there is a need for improving the cultural environment. Statistical tests were carried out with respect to the factors relating to the cultural environment and the results were as follows:

- **Organisational Environment:** all factors of this element are lower than expected, but just two significant factors show the need for improving the cultural environment. These factors are: hospitals involve all employees in quality activities and the conflict between medical and administrative staff.

Although quality is the responsibility of all staff, some focused on the necessity of having a quality management department in the hospital, especially in demands for the application of TQM. Descriptive statistics show that 50.7% of the respondents indicated that they have TQMD in their hospitals. But all activities of TQMD regarding TQM are lower than expected. The results also indicate that there were no significant differences in the levels of improving the cultural environment between those who have and those who do not have TQMD in their hospitals.

- **Knowledge:** all factors relevant to this element indicate that the employees do not agree that there was no need to change the quality culture and that the employees need information on TQM. The first one is the need to improve the cultural environment.
- **Patience:** the mean of this factor is 3.61, which means the employees are patient in achieving results from TQM. This factor is considered as one of the factors that affect the need to improve the cultural environment.
- **Environmental Factor:** some patients get additional services due to favouritism. This factor affects the need to improve the cultural environment.



- **Decision-Making:** Results indicated that employees are trying to take decisions based on facts, reducing risks, creating opportunities for improvement, updating information, scientific analysis of information and doing the right thing. There are five significant factors that influence the need to improve the organisation environment. These factors are: decisions based on creating opportunities for improvement, based on facts, updating information, doing the right thing and employees have a perfect understanding of the steps they need to take within their work.
- **Prevention:** Results showed hospitals' management and employees are trying to implement this factor. However, repetition and delay of some works and hospital managements' acceptance of some errors and not removing the reasons of errors prior to their occurrence, does not solve the problems after their occurrence and does not consider the definition of problems as an opportunity for improvement, are negatively affecting the principle of prevention. There are seven factors that influence the need to improve the cultural environment: the employees do not delay some work and avoid errors in the future, the hospital considers the definition of problems as an opportunity for improvement, solves the problems after their occurrence and removes the reasons for errors prior to their occurrence, the hospital management instil the notion of protection in the minds of all the employees and the employees search for opportunities for improving their work.
- **Information:** All factors relevant to this element are lower than expected (except for the hospital that has an excellent data base). The factors relating to the hospitals are that they: do not provide complete and new information, do not provide the information required for improvement of quality and to apply TQM, do not provide training on how to use information, do not have an excellent information system. These are affected in the need to improve the cultural environment.

Hence, the researcher rejects the hypothesis due to the 23 significant factors, illustrated above, that are affected by the lower than expected response regarding the cultural environment for applying TQM and the need for QMS to improve the cultural

environment of hospitals. 13 of the previous significance elements are fewer needs in improving the culture environment.

The previous 23 elements are also significant in some hospitals upon separate analysis of each hospital except 4 variables. Such as involving all employees, employees do not delay some work and provide information and training on how to use information for improving quality. The results also indicate that there are some significant variables that are affecting the improvement of the environment culture just in analysing each hospital. Hospital 7 contains the biggest number of the significant variables in improving the culture environment (7 variables); followed by hospitals 8, 6 and 2, whereas each of them contains 6 significant variables that are affecting the improvement of the culture environment.

There are significant statistical differences for some factors regarding the cultural environment between the hospitals and also between positions of employees. This indicates that there are different levels of implementation of these factors. There are significant statistical differences among hospitals in the involvement of all employees, no conflict between the medical and administrative staff, favouritism, decisions are based on creating opportunities for improvement, on facts and on updated information, doing the right thing, employees have a perfect understanding of the steps of their work, do not deal with some tasks and search for opportunities for improvement, The hospital solves the problems after their occurrence, removes the reasons of errors prior to their occurrence, instills the notion of protection in the minds of all the employees and provides them with the necessary information to apply TQM. Amongst the employee positions, there are significant statistical differences in the need to change in quality culture and in employees not delaying some tasks (the mean of nurses is the highest mean in the two previous factors).

**9.3.7 Seventh Hypothesis:** “There are sufficient human resources management (HRM) to implement TQM programmes”. 84.9% of the employees indicated that QMS need to improve the HRM in hospitals. The factors of HRM shall be discussed after undertaking the following statistical tests:



- **Employees' Competence:** All factors relevant to this element are lower than expected. The factors relating to the lower than expected levels in employing employees of high competence, in training contributed to improving quality, in meeting employees' needs and in the need for continuous training. These factors affect the need to improve (HRM). Although training courses on quality and TQM contributed to providing participants with different information about quality and TQM, the low number of employees who join such courses resulted in their low efficiency. Hence, they are not improving HRM.

Amongst the various hospitals, results indicated that hospitals 3, 4 and 5 have higher means than other hospitals in training to provide dimensions of quality, while the means of hospitals 1, 2, 3 and 7 are higher than other hospitals in quality application training. Amongst the various categories, results indicated that the mean of "non-clinical staff" is the lowest mean with respect to the factors relevant to the concept of quality.

- **Involvement:** Results indicated were lower than expected in the involvement of employees in decision making regarding quality and in conducting meetings to exchange opinions about quality (mean = 2.5). These factors are among those that influence the need to improve HRM.
- **Contribution to TQM Programmes:** The percentage of participants in TQM programmes is low (27.1%). Only 8.4% of them permanently participated in the activities. In general, their involvement is an effective factor in the requirement to improve HRM. The low percentage and mean for the involvement of employees in the various activities of TQM indicated the inefficiency of these programmes. Results show that there are significant differences of participation in planning of TQM among hospitals and of participation in application of TQM among positions.
- **Team Work:** The mean (2.79) of the factors of this element indicated that it is lower than expected. Three factors that were lower than expected, namely, the work is carried out in a co-ordinated manner between departments, suggestions

are treated with confidence and policies are carried out through team work, influenced the need to improve HRM. Although there are temporary teams for the improvement of quality as indicated by 25.6%, or permanent teams as indicated by 18.4%, still these teams did not affect that need. The low mean and percentage of the factors relevant to this element indicated the lower than expected levels of implementation of these teams. Results revealed that there are significant statistical differences among hospitals in, QIT always participate in one of these teams, members in QIT have interest and skills to improve quality, QIT have authority, facilities and are finding opportunities for improving quality.

- **Communication:** Results indicated were lower than expected for hospital communication systems. The mean of the factors relating to communication is 2.76. Eight factors in this element influence the need to improve HRM. These are: co-ordination in communicating information, paying attention to effective communication, messages about TQM submitted from top management, communicating the information at the right time, supplying staff with the skills of communication, more reinforcement of QI than product improvement, track QI progress and use all the main communication tools.
- **Systems:** All the factors of this element are lower than expected (mean 2.9). The following factors affect the need to improve HRM: incentive systems correlated with performance evaluation system, delegation of authority and the management systems are new.
- **Creativity:** 44% of respondents indicated they are not allowed an opportunity to be creative in their jobs. This has a detrimental effect on the need to improve HRM. The low mean of variables of creativity (except in employees that take decisions based on new ideas to improve quality) indicated that the management of hospitals and their systems do not encourage creativity amongst employees. Results revealed that there are significant statistical differences amongst hospitals in employees suggesting new proposals to improve quality and in



incentive systems and in hospitals that use TQM to motivate employees in various positions.

Due to the above results, the researcher rejects the hypothesis of efficiency of HRM in the implementation of TQM programmes in the previously discussed effective factors. 12 of the significance elements are fewer needs in improving the HRM. These variables related to the employees' competence, involvement, teamwork, communication and system.

The previous 20 elements are also significant in some hospitals upon separate analysis of each hospital except 4 variables, namely: "continuous training courses", "coordination between departments", "coordination in communication of information" and "effective communication". The results also indicated that there are 22 significant variables that are affecting the improvement of HRM just in analysing each hospital. The biggest number of significant variables is in hospital 9 (19 variables).

Results indicated that there are statistically significant differences in some factors in HRM that show the varying levels of implementation of these factors among hospitals and employee positions. These factors include: employing highly competent people, providing training courses that meet employees' needs, continuous training courses, participation in decision making, staff meetings held, communication of information, supplying staff with communication skills, reinforcing QI more than product improvement, using all the main communication tools. In addition to co-ordination between departments, suggestions treated in confidence, policies carried out through team working and co-ordination, incentive systems correlated with performance evaluation systems and the management systems are old. The results show that non-clinical staff registered the highest mean with regard to the suggestions treated in confidence.

**9.3.8 Eighth Hypothesis:** "Hospitals do not suffer from high quality costs of health services". Results show a lower than expected level of information to employees regarding quality costs as indicated by 75.6% of them. Also, in separate analysis of each hospital the results found that between 87.5% and 66.7% of the respondents indicated that they did not know about the quality costs in their departments. Quality

supervisors stated the difficulty of obtaining such information, since there is no allocation of quality costs in hospitals' budget. According to 22.2% of the employees, the biggest item in quality costs is prevention, followed by the appraisal costs. Hence, according to the available information, the researcher could not ensure the validity of the hypothesis.

**9.3.9 Ninth Hypothesis:** "Hospitals make sufficient use of TQM tools". Results found that tools do not have a significant impact in improving quality. Just (28%) of employees use the various tools of TQM and that of this 28%, most of them use a small number of TQM tools. For example only 22.1% use a check sheet (the highest usage) and only 6% use a Pareto chart. The most frequently used tools are "check sheets, brain storming and quality circles". In analysis of each hospital the results show that between 63% and 97.6% of the respondents indicated that they do not use TQM tools.

The results show that there were significant differences among hospitals in using brain storming and control charts and among positions in using flow charts and control charts. The researcher can therefore reject the hypothesis that hospitals make sufficient use of TQM tools.

## **9.4 Conclusion:**

The results of the general data indicated some characteristics of the samples of hospitals, patients and employees. The results of the study objectives concluded that the concept of quality included four factors and three factors from the standpoint of patients and employees respectively; there is greater application of the characteristics of traditional quality management systems in hospitals; the definitions of TQM that included four factors and the importance of applying TQM in hospitals. The results of the research hypotheses concluded the non-validity of hypotheses from 1 to 7 as the results indicated: the non-availability of standards and indicators of quality; fewer than expected plans for TQM and their failure to improve quality; lower than expected commitment from top management to TQM and lower than expected customer satisfaction, process, cultural environment and HRM. There was a failure to confirm validity or non-validity of the hypothesis relevant to the costs. The results indicated deficiency of the usage of TQM tools was confirmed.



The next chapter will present the summary of the theoretical study and empirical study of this research. The theoretical study included the introduction, health services in the KSA, quality in health services and development, elements and application of TQM in health services. The empirical study included methodology, analysis, results, discussion and proposed future results.

## **CHAPTER 10**

### **CONCLUSION**

This thesis has presented a study of Total Quality Management in MOH hospitals in Jeddah City in the KSA, based on considering the concepts and elements of TQM to improve the quality of health services. The main research questions, formulated in chapter 1, have investigated three subjects including quality, the quality management system and TQM, which is considered the main subject of this dissertation. The objectives of the research include clarifying and determining the concepts of quality, the characteristics of a quality system, the definitions and importance of TQM. The hypotheses focused on testing the following in MOH hospitals: quality standards and indicators in hospital health services. The plans of QM lead to improving the quality of health services in hospitals. Other hypotheses related to testing the elements of TQM such as the commitment of top management to the implementation of TQM programmes, the satisfaction of customers with the current quality of health care, the hospitals' focus on the quality process, the cultural environment in the hospital as regards the implementation of TQM, the human resources management to implement TQM programmes, the quality costs of health services and hospitals' use of TQM tools.

This study had been developed through both a theoretical study and an empirical study, which were presented in the ten chapters.

The Kingdom of Saudi Arabia is one of the developing countries that started to plan implementation of QM programmes its MOH hospitals in the 1980's. The subject of the study has been presented in the first chapter through a comprehensive presentation of the issue of quality and its dimensions and importance, focusing on TQM through its definition and importance. The problem of the research was defined as an anticipation of the implementation of TQM in MOH hospitals to achieve quality in their services, to solve many of their problems and to face up to their low budgets at the same time as an increasing demand on the services of these hospitals. The thesis has reviewed the most important previous research on quality in the health sector in the Kingdom. This chapter included the major questions of the research that have been translated into the objectives and hypotheses of the thesis.



The health services in the Kingdom, which have been discussed in chapter two, included the health system in the Kingdom which aims to provide the best possible health services in all of the Kingdom's regions through primary health care centres, general hospitals and tertiary hospitals. The MOH is the supervisor and the basic provider of health services offered by both the government and private sectors in the Kingdom. The health sector had recorded some progress during the five-year development plans which focuses attention on hospital QM programmes began in the 1990's. Chapter two also discussed the health situation in the Kingdom, the external environment factors that affect the health sector; such as demographic, economic factors and the cultural and educational factors. This chapter also reviewed the characteristics of a hospital, and many of the problems that face MOH hospitals. These problems include manpower, administration, buildings and equipment, medical supplies, nutrition and the service beneficiaries.

Quality in health services was discussed in chapter three through a number of points that included the concepts, definitions, historical development and dimensions of quality in health services. In addition, the philosophy of quality management was discussed. The concept of quality depends on a number of factors such as resources, regulation, social, organisational, political, technical, human, ethical scientific and cultural environment. In fact, there is no one definition for quality in health services. In this study, quality has been identified as "the degree to which effective health services attempt to improve the health status and satisfaction of a target population by improving organisation of health depending on modern and suitable knowledge, technical, tangible and human aspects, with optimal use of available resources". The idea of quality of health care has been developed since early times. The development of quality as a managerial system in the field of health services commenced in the twentieth century out of the quality assessment system to quality assurance to TQM. This was due to the need for improving the level of quality of health services provided and the desire to reduce its costs. Numerous persons and parties had contributed to this development in the developed countries. However, developing countries are still suffering from many problems in their health sectors and the implementation of programmes of quality management, particularly TQM. Finally, the chapter proceeds to discuss the dimensions of quality, which include effectiveness, efficiency, optimality, acceptability, safety of the environment, legitimacy, equity, measurable

and adaptiveness. The philosophy of quality management such as quality audit, quality control, quality assessment, quality assurance and total quality management. In addition, the relationship between marketing and quality.

The principal subject of the research, namely TQM, has been treated in chapters four and five. Chapter four discussed the concept of TQM that includes comprehensiveness, integration and other principles of TQM and aims to achieve continuous improvement in quality. Many pioneers and authors contributed to establishing definitions for TQM. TQM is defined as a comprehensive and integral managerial system that is committed to generating a working environment in hospitals, which achieves continuous improvement for the abilities and the skills of all employees and working systems. This improvement aims to be a continuous improvement in all activities that lead to improved health services through application of all elements of TQM that are appropriate to the hospital. In fact, there are many models for the application of TQM such as models of TQM from the pioneer's perspective and other models. The TQM system is different from traditional quality systems in many aspects, such as definitions.

Chapter five discussed the usages of TQM. TQM has many benefits and usages may pave the way or can offer opportunities for improving quality. The implementation of TQM in hospitals does not take place by setting a system, but through management thinking that looks for the continuous improvement of quality of all that exists in the working environment through the implementation of the TQM factors. These factors are: commitment of top management to support TQM; containing the quality costs and usage of suitable TQM tools.

There were many applications of TQM in a variety of clinical and non-clinical services in hospitals that can contribute in improving quality. In fact, there is no one model or method for the implementation of TQM in hospitals, but there are many models, procedures, stages, strategies, opinions suggested and successful experiments in its implementation in hospitals. In the public sector TQM can be applied in public hospitals with consideration to its characteristics, environment and the differences between public and private sector. In fact, there are a number of criticisms of TQM. The criticisms of TQM focus on some elements of the concepts and the principles of TQM, in addition to the criticism of the models of the TQM' pioneers. The practical



criticisms depend on the difficulty of successfully applying the concept and the elements of TQM. This section explored the criticisms of TQM in the public sector and private sector. The way to success is not an easy one, particularly in developing countries. There are numerous problems and errors that face the implementation of TQM in hospitals, such as technocratic and humanistic problems.

The field study was discussed in chapters six, seven, eight and nine. It was conducted in two stages: the pilot study and the main study.

The pilot study was conducted in 1997, using the survey approach. Two questionnaires were used; the first was distributed to patients and the second to employees in 14 hospitals under the Ministry of Health, military and the university hospital, and private sectors in the city of Jeddah.

The main study was conducted in 2002. Again two questionnaires were designed and distributed. The first one dealt with the employees and the second dealt with patients in hospital. In addition, the interview method was used with the managers in the quality departments in hospitals. The hospital samples included all government hospitals under the MOH in Jeddah city, a total of 9. The research population included in-patients (males and females, adults and adolescents – aged 12 and above) and the employees of these hospitals (doctors, nurses, others clinical staff, and non-clinical staff). The sample of patients consisted of 345 patients and consisted of 450 employees.

The methodology of the field study was explored in chapter 6. This chapter describes how and why different methods and stages were used in the main study through many points such as: surveys, as this study was descriptive and explanatory research. It used qualitative and quantitative research methodology, and questionnaires and interviews, but fundamentally depended on using quantitative techniques and questionnaires; qualitative and quantitative interview methods and questionnaires including details on how the questionnaires were designed and why by using theoretical and practical considerations, as both questionnaires included general and basic information and have questions relating to quality and TQM; the stages for selecting the sample including the size and kind of samples; distribution of the questionnaires; statistical techniques; the pilot study; the research limitations; and

finally details regarding reliability and validity; discussed the plan of execution, and data analyzing.

The researcher used a number of statistical analysis techniques such as multiple linear regression, factor analysis, correlation, mean, median, mode, variance, standard deviation, Chi Square, multi-level modelling, ANOVA and *t*-test in the analysis of questionnaire results in chapter 7 and 8. The most important results of the general data, the objectives and the hypotheses of the research were presented in chapter 9 as follows:

- In spite of the increase in the number of government hospitals and the workers and beds therein, government hospitals in Jeddah have a shortage in the bed ratio compared to the ratio in the other regions of the Kingdom. This is due to the limited financial resources allocated to these hospitals in comparison to the number of the city's inhabitants. Here, the researcher proposes to conduct a study in the future to determine financing resources for these hospitals other than the governmental resources, as well as studying the feasibility of such finance.
- Misuse of the available resources resulting from increase/decrease of the term of in-patient's stay in the hospital and the rate of occupancy of beds. This may be attributed to the inefficient management of limited resources available to these hospitals as evident in the study by Mattar (1997), difficulty of setting constant standards for inpatient policies due to the variance illness cases (Al Ahmady, 2001, p. 425), absence of the internal regulations that organize hospitals, their policies and procedures of work and lack of standard criteria for operation (MOH, 1993).
- The average number of manpower varies in different hospitals. This is consistent with what is mentioned by (WHO, 1983) with regard to the developing nations suffering an unbalanced distribution of labour force in the health sector. The results also indicated that the average number of years of experience of non-clinical staff is higher than that of clinical categories.
- Some characteristics of in-patients in MOH hospitals were: the majority of them are Saudis, of secondary educational level or lower, of ages from 15 to less than 40, of low income category, a large percentage of them were admitted as inpatients from emergency while the percentage of those who are transferred from health centres is low. That may be attributed to an inadequate system for referring cases among three levels which provide health services (MOH, 1990, p.345). Hence, the researcher



suggests further study to determine the reasons behind the low number of inpatient admittance from Health Centres and the high ratio of inpatient admittance from emergency rooms, as well as studying the effect of favouritism in inpatient admittance. Moreover, the researcher recommends conducting a study in the future to explain how to benefit from the international systems in making policies for making medical decisions pertaining to inpatients suitable to the capabilities of these hospitals. In-patients who had been admitted for medical check ups were more satisfied than others with respect to quality of health services provided in hospitals. The study also indicated that a small percentage of them were admitted for medical check ups and a low percentage of them obtained preventive and educational services. This may be because most of the hospitals are still managed using traditional methods in terms of attention to medication and diagnosis and not looking at prevention and raising consciousness as methods of medical treatment. Further research is suggested to define what education the MOH hospitals can provide and the best methods that can be used. In analysing each hospital, the results indicated that there were differences in the demographic elements of patients in different hospitals. Further research may be needed to study the effect of these elements on the health services and the quality in each hospital. As this study was interested in all hospitals, not each hospital as clarified in the limitation of the study.

- In fact, there is no unique concept or definition of quality (Vuori, 1982, p.42). The results of this study indicated that the concept of quality from the standpoint of patients included social aspects, human and technology aspects, medical care and comfort and service the maximum number of patients. While the standpoint of employees included providing guarantee of health services, medical care and social aspects. Perhaps these results include many elements such as economical, social, technical, human, ethical, scientific and cultural environment (Graham, 1990 a, p. p.xiii). Although the study is one of the first studies in the KSA which clarified the concept of quality from the patients and employees view in Saudi hospitals, it is limited as it did not study the concept of quality from other customer viewpoints as mentioned in limitation of the research. So perhaps further studies are needed on this issue.

-There were many differences between traditional quality and TQM in many elements (see Borden *et al*, 1994, P.7; Shihatta, 1995 b, p.58; Bin Saeed, 1997, p. 108; Robins, 1992, p. 810; Al Khalaf, 1997, p. 124). The result in the KSA hospitals found that

88% of the previous factors pertaining to defining the characteristics of quality systems were applied according to the traditional quality management systems. The remaining 12% of the factors did not evidently apply to TQM systems or were applying them poorly. These results indicated the need for a radical change in the characteristics of the existing quality system in hospitals to improve the application of TQM. This maybe related to the fact that the health sector is still operating in the traditional administrative manner (WHO, 1981, p.26), a shortage in qualified and specialised staff in TQM (Darbas, 1994, p.16) and the deficiency of training and education programmes in administration and administrative techniques (WHO, 1983, pp.133, 134), especially with regard to quality and TQM as clarified from this study. Hence, a further study may be needed to change these characteristics of quality systems'. In general the results from analysing each hospital show that, overall, hospitals are still practising the old quality system. But the results indicated that there were differences between some hospitals in applying some elements of the old quality system. Further research may be needed to study the characteristics of quality systems in each hospital.

- Again, there is no unique definition of TQM (related to chapter 4). The results of this study indicate that the definition of TQM from the point of view of the employees included four factors; the content analysis of TQM, the concepts of traditional quality systems, a wide definition of TQM and changing quality culture to benefit TQM. The definition of TQM in this result includes many elements such as comprehensiveness and integrity, many elements and principles of TQM, and practical aspects. In addition, many of the concepts of traditional quality systems, may be related to most recent applications of TQM in the government hospitals and deficiency of training and education programmes with regard to quality and TQM as clarified from this study. This study is one of the first studies in the KSA which has clarified the definition of TQM from the employees view. An understanding of the concept and definition of TQM is the first step to applying TQM, hence, the further study maybe look at the methods that aim to deepen and spread the concepts and definitions of TQM among the employees to change the concepts of traditional quality management. Also the researcher suggests further study to find out the effect of the employees' definition of TQM on applying TQM.

- TQM is one of the methods that can improve the quality in hospitals and has led to positive effects in hospitals (Al Gahttain, 1993, pp.8-9; Labovitz (1991, p.15). In this



study the results indicated that there is a need to improve quality and this agrees with the hospitals' need to develop an effective and efficient system for clinical and managerial services (Kock, 1991, p.30). Although there were a number of critiques to the theory and application of TQM especially in the public sector (for example see Harari, 1993, 33-36; Schaffer and Thomson, 1992, pp. 80-89; Morgan and Murgatroyd, 1994, pp.43, 61). The results indicated there is a need to improve the application of TQM elements to improve the quality in MOH hospitals. These results agree with the study of Al Touri (1998, pp. 280, 281) which found that quality programmes are in place in the KSA, but at a low level and very ineffective. Possibly that is related to a shortage in qualified and specialised staff in TQM (Darbas, 1994, p.16), changing the quality plans with the changing of the company that operate the hospital and focusing on the short-term objectives (Al Gurashi, 1995, p.64). A further study is needed to determine the stages and arrangement that are needed to prepare the hospitals and employees to improving the quality by successfully applying the elements of TQM.

The results of analysing each hospital found that the ranking of the need to apply TQM elements varies from one hospital to the other. These differences calls for further study, such as 'the affect of these differences on the successful application of TQM in each hospital'.

- According to AL Mola, (2001, p.112) both standards and indicators are essential to assess quality improvements in hospitals as TQM needs it for monitoring, evaluation and improving the quality. But the results from analysing all hospitals and analysing each hospital indicated that most MOH hospitals have not quality standards and indicators. Maybe that is related to the recent interest in quality in the KSA. In addition, the absence of general criteria that govern the quality and efficiency of the services (MOH, 1990, p.344). The further study suggested to MOH, is to do immediate study for the establishment of a proper system for quality standards and indicators acceptable to the environment and the ability of the health sector and the willingness of hospital staff (especially medical staff) to accept the system.

- The plans of TQM and improving the quality is an essential stage in applying TQM, as Juran suggested three elements "quality planning, quality control, and quality improvement" (McLaughlin and Kaluzny, 1994, p16). The results indicated that the present quality plans relevant to achieving the factors of TQM are available, but at a low level. There were two plans that had an effect on improving quality. These are

plans relating to human resources management and plans relating to the availability of a suitable cultural environment for quality achievement. Maybe it relates to a deficiency in the programmes of health sector plans (WHO, 1981, p.25), changing the quality plans with the changing of the company that operate the hospital and focusing on the short-term objectives (Al Gurashi, 1995, p.64). In this point the researcher suggests further study related to why just two plans had an effect on improving quality?

In analysing each hospital the results indicated that there were differences in significant elements in analysing all hospitals and in analysing each hospital separately. Further research may be needed to study the plans of quality in each hospital. As this study was interested in all hospitals, not with each hospital as clarified in the limitation of the study

- In general, there was a weakness in the application of TQM in hospitals. These results agree with the study of AL Touri (1998, pp.280, 281) that found the low level and ineffectiveness of quality programmes in hospitals in the KSA and that quality improvement could be developed for hospitals within the KSA. Hence, the hospitals clearly need to be provided with vision and guidelines to improve the application of the TQM elements. Further research suggested how the hospitals can develop a programme to apply the elements of TQM which must work within the existing financial, technical and managerial constraints and should focus on gradual rather than abrupt changes, the factors that affect TQM and in improving the quality of health services as seen from the following results:

- Top management: play a key role in fostering TQM (KFAFH, 1993, p.2; Borden *et al*, 1994, p.26). This study found that weak support from top management to the implementation of TQM with respect to 7 affecting factors that are mission, vision, values, objectives, process, patients' satisfaction and containing costs. In general one important aspect facing the application of TQM is lack of top management commitment and vision (Kock, 1992, pp.25, 26; Al Bakri, 1996, p.399) In the KSA, hospitals are still suffering from shortages in the skills and abilities of administrative staff at all levels (WHO, 1988, p. 62). Moreover, in some cases physicians are assuming managerial posts in hospitals although many of them have never received any administrative training (WHO, 1983, p.133). The managers in the public sector are working in a non-competitive environment where rewards are based on performance, there were many limitations in the current public management practices



such as bureaucracy, resistance to change. In fact, securing the commitment of the leadership may be a difficult task. The results indicated that the model suggested in the study explains 32% of the variations in the dependent variable, so the residuals related to the other elements are not included and other studies will need to carry out research into this aspect.

- Customer satisfaction: Patients are considered as the primary customers in health care (Decker and Sprouse, 1992, p.172). Patients may be interested in many elements such as access, process, services delivery, clinical outcome, resources and amenities (Borden *et al*, 1994, pp.5, 9). This study provided a model that suggested twenty factors to explain the health services provided for inpatients in hospitals including internal and external environment, system and work procedures, medical services, medical support services and others services which have an effect on quality.

Although TQM attempts to know the patients' views, their needs and expectations, and to recognise these as important requirements in quality services (Scardina, 1994, p.38). The results indicated that patients have a low satisfaction with the quality level of the provided health services. Although this level was between average and good, it still did not meet their requirements. These results agree with Al Khatteeb study (1987 a, pp.20, 23; 1987 b, pp.31, 36) that found that there is some deficiency in some health services in hospitals, while the results do not agree with the study of Al Hamad, and Al Shouaib (1991, pp.7-36) which found the satisfaction of most patients in many health services. These results maybe related to the absence of a competitive element amongst these hospitals. In addition, many problems face these hospitals such as increase in demand and budget reduction.

The results indicated a low level of satisfying patients' requirements in respect to the effective factors in the level of quality of services, choice and problems. Some of these factors agree with the results of Al Khatteeb's study (1987 a; 1987 b) In fact, patients' satisfaction has many benefits, but in the public hospital the idea of the patient as a customer is a more problematic concept for many reasons (Morgan and Murgatroyd, 1994, p.54).

TQM is also interested in the satisfaction of internal customers such as employees. But the results indicated employees' dissatisfaction with respect to two factors, which are for the hospital endeavour to realise the expectations of employees and keenness to interact with employees. Maybe that is related to many elements relating to the

HRM. These 2 factors are significant in some hospitals, while there are variables that are significant when analysing each hospital separately.

Further research is needed to define the other hospital customers' satisfaction (not just patients and employees as mentioned in the limitation of the study). Also, a study related to how the hospitals with their current ability can use the previous effective factors in patients' requirements to improve the services that affect the level of satisfaction.

-Process: TQM focuses on the system and process (Miller and Flanagan, 1993, p.62) and can be defined as a continuous improvement process (see definitions of TQM). But the results found that the hospitals did not focus on the quality of the processes. This was manifested in many factors that affected the improvement of process. Maybe these results are related to the fact that the health sector in the KSA is operating in the traditional administrative manner and still suffering from many administrative problems. This may have an effect on the process in these hospitals (related to chapter 2) such as poor co-ordination between the parties providing health services (Al Ammari and Al Turki, 1984, p.67), unavailability of quality standards and indicators in these hospitals. In addition, there were insufficient policies and procedures for operations, especially formal procedures in MOH hospitals (MOH; 1990, p.344), and they were also slow in applying the elements of TQM as clarified in this study. The results indicated that the model of process related to TQM in the study. But the other elements were not included and other studies will need to research this issue. A further study also needs to evaluate the present situation of all processes to determine the actual applied procedures, work steps and systems.

- Cultural environment: Based on creation and development of a base of values, norms and behaviours (Shortell *et al*, 1995,p.5) amongst employees in accordance with the concept and principles of TQM. In the developing countries such as the KSA, the MOH hospitals need to change their culture, as many elements that are needed to improve the cultural environment mentioned in this study were lower than expected. The cultural environment in hospitals did not contribute to the achievement of the provision of a proper work environment for the programmes of TQM. There were 23 factors that affected the need to improve the cultural environment. These factors related to organizational environment, employees' knowledge of TQM, patience in implementation and realisation of TQM, favouritism, decision-making, prevention and information. That may be affected by many elements such as the existence of a



traditional system of management and quality, the latest developments in quality and applying TQM in the KSA, poor information system, deficiency of training and education programmes relating to quality and TQM (relating to chapter 2). In addition, these hospitals depend, especially in operating hospitals, on the expatriate labour force imported from various countries (MOH, 1990, p.343), most of them from the Arab countries and from the countries of East Asia or other developing countries which do not implement quality programmes. The results indicated that the model of cultural environment is related to TQM in the study. But other elements are not included and further research is needed into this issue. Also further research may be able to answer many questions such as: How can the hospitals improve the existing culture environment before successfully applying TQM? What are the methods and the tools suggested to improve this culture? How can the quality department play an effective role in improving quality.

- Human resources management: HRM is one of the principles of TQM in hospitals (Stuart, 1994, p.48; Saddique, 1995, p.20). This principle includes many factors such as all the employees' involvement, teamwork, communication systems, continuous training and education and creativity (related to chapter 5). In fact, there are still many issues and problems that face the MOH hospitals and have an affect on HRM and improving the quality of health services. Such as: the manpower plans in the field of health are not clearly specified (AL Mola, 2001, p.20), high employment turnover among the expatriate labour force (Bin Saeed, 1994, pp.6, 7, 30), low percentage of qualified Saudi labour in the health sector (MOH, 1990, p.343). In addition, the health sector is still operating in the traditional administrative manner, the deficiency of well-organised programmes for administrative training such as training on quality systems (Al Gurashi, 1995, p.64), deficiency of the policies of employment and job description in the health related occupations, in the levels of wages and motivation in the MOH hospitals, insufficient medical research, misunderstanding of quality and its importance, the top management not encouraging its implementation, changing the quality plans with the changing of the company that operate the hospital and focusing on the short-term objectives (related to chapter 2).

The previous elements affect the results of HRM in this study as all factors pertaining to HRM regarding TQM were lower than expected. There were 20 factors that affected the need to improve HRM. The results indicated that the model is related

to TQM in the study. But other elements were not included and other studies will need to research it.

In analysing each hospital separately the results found that the same previous significant elements of TQM are significant in some hospitals, moreover, there are other elements that are significant only upon analysing each hospital separately. Further research may be needed to carry out a case study in each hospital to define how each hospital can improve application the elements of TQM.

- Containing the quality costs. Cost is one of the elements that encourage the hospitals to apply TQM. This includes the prevention, appraisal and failure of quality costs related to chapter 5). In this study, it was not possible to substantiate validity or non-validity of the hypothesis pertaining to increasing costs of quality in hospitals, as many of the employees have no knowledge about the cost of quality. Maybe that is related to the fact that hospitals' budgets are not related to quality costs, the information about the cost is not available to the researcher (related to the interview with quality supervisors). Hence, there is a need to undertake more research relating to quality costs such as, what kind of information of quality costs can be useful for clinical and non-clinical staff for containing the cost within the hospital. This maybe done by employees of the MOH for ease of accessing information.

- TQM tools: These tools can help the hospitals in improving the quality of health services provided. However, the results indicated that there was a deficiency in the usage of TQM tools, as there were only a few TQM tools used, few employees used a small number of tools but this did not have significant impact in improving quality. This maybe related to the latest developments and the shortage of TQM knowledge in these hospitals and inefficiency of the training related to TQM. Hence further research may be able to answer the question why TQM tools do not contribute to improving the quality of health services? .

In addition, to the previous proposed future research. There is much future research needed relating to this study, such as the following:

- A study of the extent of application of concepts and factors of TQM in private hospitals, primary health care centres, in other government sectors such as education and in the private sector such as in factories and banks. Also in regions and areas of



the Kingdom other than the city of Jeddah. And compare results with the previous ones.

- A study of the implementation of the method of simulation to convey the factors of TQM success in tertiary hospitals to MOH hospitals.
- A study of the effects of environmental, behavioural and social factors of individuals (patients and employees) on the implementation of TQM concepts and factors.
- A study of the possibility of establishing a research centre by MOH to conduct regular research on TQM.

## **10.0 Conclusion**

This chapter presented the conclusion of the subject of the study of Total Quality Management in MOH Hospitals in Jeddah City in the KSA. The study was developed through theoretical and empirical studies. The theoretical study included the introduction, the health services in KSA, quality in health services and the development and application of TQM in health services. The empirical study included the methodology of the study, the survey, the data analysis, the results and, finally the further research suggested. This study has made an important and new contribution to the knowledge about TQM in the hospitals in Jeddah.